Textile World

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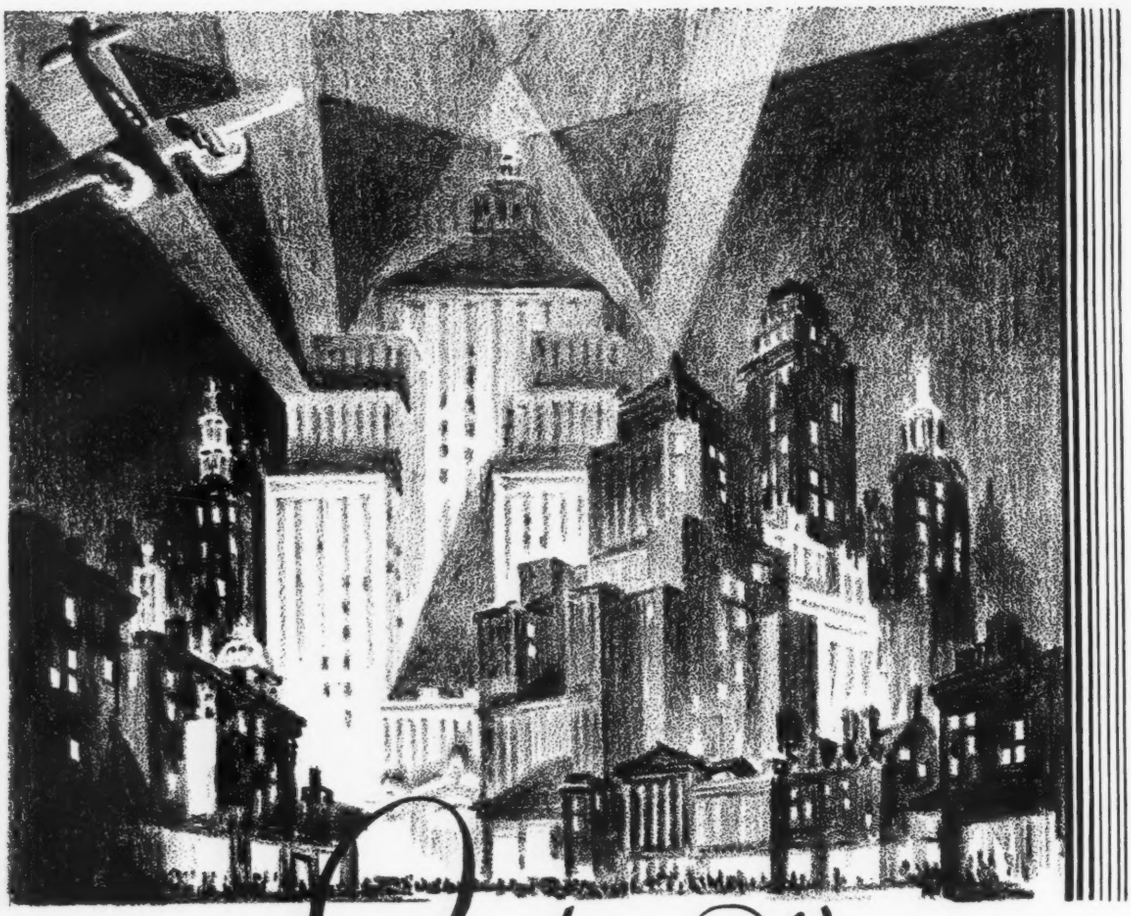

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Textile World

March, 1934

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Editor: DOUGLAS G. WOOLF

NRA vs. Rest of the Alphabet

THE New Deal is a year old this month. After a year of headlines, it is still the most fertile source of news for both the daily newspapers and the business press. Consequently, it rates an anniversary scrutiny here.

Although it would simplify matters to lump all the policies of the Administration together for such a review, we find that impossible. Frankly, we have one attitude toward the NRA, and quite a different one toward most of the other agencies, such as the AAA, PWA, CWA, etc. The latter group we regard as varying forms of a dole. We do not mean to infer that we regret their existence. The needs of a people transcend theories of government.

The NRA, however, in our opinion represents not only a socially effective agency, but a sound administrative principle. In its best meaning, it offers industry a chance to manage its own affairs.

We said in its "best" meaning. The fact that the NRA departs from its "best" quite often is merely another demonstration of human fallibility.

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To curtail the number and extent of such departures we recognize two great needs:

First, industries must strengthen their own organizations. There are still too many cases where competitive jealousies among individual men or companies within an industry are impeding effective code administration. It is our belief that this difficulty is averted when the industry's Code Authority is headed by a strong paid executive, who is not personally concerned with these antagonisms and who is big enough to compose differing points of view. It has been our observation that Code Authorities so manned have done the best jobs, while the weak spots have been those groups who still think of a trade association official as the under-paid, easily-frightened "hired-man" type.

The other part of the job rests with the NRA. We have been alarmed at the number of complaints which have reached us in recent weeks: complaints from erstwhile loyal supporters of the Administration. Principally, they involve red-tape delay and lack of decisiveness. Either or both of these faults on the part of NRA can wreck the future of the whole program. We suspect that the cause is a mixture of poor organization, disagreement among individuals, and Congress-phobia. Possibly the "town meeting" just held in Washington will prove to have helped this situation. As one who is enthusiastic about the job done by General Johnson and his organization in the past, we urge careful consideration of this particular type of complaint, if the effects of that job are not to be nullified.

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Finally, there is one principal way in which individual industrialists can help.

During the last year, hundreds of textile manufacturers have subordinated their personal beliefs and prejudices, built up over a period of years, to a conscious desire to help national recovery.

The need for this bigness of mind and of heart has not passed. Complete recovery is still to be achieved. The convalescent stage is usually the most trying one.

None of us needs to endorse the New Deal in toto. But all of us should support those phases of it which have helped, and which promise to continue to help.

The Editor Says:

A PERSON without a sense of humor should stay out of Washington these days. Recently, during a meeting of business paper editors there, we found our own grinning ability taxed pretty seriously.

The AAA crowd are the best source of that emotion half-way between laughter and tears. When we reached Agriculture, we were told that, before starting our interviews, we would have the privilege of inspecting the almost-human check-writing machines which are sending bits of joy to so many farms today. After wandering over several floors (this department had been moved during the night) we finally located them. We were told solemnly that the department could turn out 80,000 checks in 24 hours, and that it hoped soon to achieve an actual output of 2,000,000 checks a week. . . . . That's pretty good for an agricultural department, or for any department for that matter, don't you think? . . . . One of our crowd was frivolous enough to suggest that a check-reduction program might have to be inaugurated some time in the future.

Then, too, we learned that the PWA, through certain power and other developments, had put some land back into production. Of course, that would never do, so AAA gets a similar appropriation to take a corresponding acreage out of production. You spend $25,000,000 to put land back in, $25,000,000 to take it out—and for your $50,000,000 you get status quo. . . . . That's not the exact situation, but it gives you a general idea.

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Pump Primed Enough?

BUT don't misunderstand us. Every division of the Government—including AAA—is manned by sincere, hard-working men and women who are trying to make the thing work. If they strike some silly attitudes occasionally, it is merely because of the magnitude of the experiment and the incompatibility of many of its parts.

The main question, of course, is: Will it work?

Here is the answer supplied by a brilliant economist in Washington who met with the editors and whose opinion we have always found sound in the past:

"The recovery now under way is due to a very large extent to Government spending. Capital goods improvement has been due to the PWA and CWA; consumer goods pick-up to the effects of the AAA, etc.

"In an emergency, the first thing to do is to see that people get employed—even though the method may not be economically sound. Any other course leads to deterioration—and possibly to revolution.

"Whether business is going to be primed enough by this spending to resume by itself will decide whether or not the capitalistic system can be continued. If such self-resumption proves impossible, and if we have to keep up this public spending, it will be necessary to develop national planning—call it socialism, or collectivism, or what have you.

"It is important for business to recognize this. If it can't pull out with the help the Government has given, the system has no right to expect to exist. Business is not playing a penny-ante game, but a life-and-death game for the existing economic régime."

That's something to think about.

P. S.—This man told us, in answer to a direct question, that he personally feels the pump *has* been primed enough and that business *can* resume by itself.

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The Code Round-Up

ON a later trip to Washington, we heard General Johnson address the Code Authority Conference on the evening of March 7. He is quite right when he states his methods are politically unconventional. If a less strong man said some of the things the General said that night, he would be in for a tough time of it. Personally, we like his method of approach. Two great virtues stand out: courage and intellectual honesty. It gave us a great kick when he warned those who have been after his scalp, that he is on the job "for the duration."

Moreover, he gave an effective answer to the many who had worried over his attitude toward a further reduction in hours by fiat. He wants more employment through lower hours but he has far more sense than to expect all industries to be able to follow the same formula. In this, he will have to resist Congressional stupidity.

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George Sloan Presides

THE textile industry was honored by having one of its leaders—George Sloan—appointed by General Johnson to preside at the meeting of consumer goods code authorities which followed the general round-up. We can testify that he did a good job of it. He continues as chairman of that group in the conferences with a similar committee representing capital goods interests.

The following textile men were selected as alternates on the consumer goods committee: Arthur Besse, president of the National Association of Wool Manufacturers, Earl Constantine, managing director of the National Association of Hosiery Manufacturers, and Paul Debry, president of Federated Textile Industries, Inc. . . . For some men, the Battle of Washington has barely started.

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The Institute Idea

THIS is what Frederick M. Feiker, who has been conducting the survey of textile education for the Textile Foundation, thinks about our suggestion for an American Textile Institute:

It seems to me that the idea of the Textile Institute which you have proposed, in the first place is fundamentally sound. . . .

Inquiry into textile engineering education leads me to believe that there is room in the textile industry for a great organization such as you visualize, for the forwarding of what I think of as a research spirit in the industry. The roots of the textile industry lie in craftsmanship. Long before the factory system was established, there was a relatively great textile industry. The future problems of the industry, it seems to me, depend on the facility and ability with which the leaders of this industry cross-breed—if you will—scientific approach to the problems of production and distribution, while holding to the fine concepts of quality in design and materials, which constitute the basis of true craftsmanship.

Underwood & Underwood

President Roosevelt opening the Conference March 5. General Johnson in foreground

Machine Limit

HOTLY DEBATED AT CODE AUTHORITIES' ROUND-UP

By Paul Wooton

Washington Correspondent, TEXTILE WORLD

ON this page, our Washington correspondent presents one of the high-lights of the round-up of Code Authorities in Washington.

Undoubtedly, this five-ring circus was a worth-while show. It gave a great many people a chance to get grievances off their chests. It should point the way to reforms in both NRA and industry.

Some of the complaints uncovered were not pleasant. In too many cases, it appears, industries are merely rendering lip service to NRA, and are attempting to "get away" with whatever they can. Whether they know it or not, they are merely cheating themselves.

So far as the 30-hour week bugaboo is concerned, we agree with textile leaders that such an arbitrary action would tend to nullify the progress made to date in this industry. We feel that many industrialists rejected the idea automatically —by traditional impulse. The textile Code Authorities, however, have facts on which to base their opinions. They have a record of re-employment achievement to show. To lump them with all industries, irrespective of accomplishment, would be absurd. We cannot believe this will be done, finally.

On the question of limitation of machine hours (discussed below) we have yet to see an argument which could convince us that some method embodying the principle of such limitation is not absolutely essential in a plan of the NRA type.—*Editor.*

ONE of the greatest assemblages in the history of American business took place in Washington during the week of March 5 at the Conference of Code Authorities. No effort is being made in this article to discuss the general results of that meeting but of great interest to the textile industry was the discussion of limitation of machine hours. This policy was attacked vigorously by members of the code authorities for the wool textile, carpet and rug, upholstery and drapery industries and by the NRA advisory boards for consumers and for labor.

In sharp contrast with that trend George Sloan, chairman of the Cotton Textile Code Authority, defended production control. Mr. Sloan argued that the removal of limitation would plunge the cotton textile industry into a downward spiral and offset the improvement which has been made since limitation was put into effect. He pointed out that under the limitation plan employment in the cotton textile industry had climbed from 320,000 in March, 1933, to 434,000 in January, 1934, and that an 89% increase in wages had taken place in the same period. He emphasized the fact that replacement of machinery with new and efficient types has been going forward rapidly in the industry.

In the opinion of the opposition, limitation means reduced employment, higher costs and a minimum of machinery replacement. It was contended that the limitation provision discriminates against the efficient mills in favor of inefficient producers.

"It would be suicidal to step up selling prices by adding to unit cost prices of a product when prices are already dangerously high from increased labor costs," according to a paper prepared by Curt Forstmann of the Forstmann Woolen Co., read before the meeting by Glenn Gardiner. "Limitation of machine hours would take away that flexibility of operation necessary to mill efficiency." Advocates of machine limitation were charged with desiring a "sellers' market" by Mr. Forstmann, who held it was in direct opposition to the NRA.

Dr. Paul Douglas of the Consumers' Advisory Board asserted that the consumer loses and industry does not gain in the preservation of high cost producers at the expense of efficient mills. In an industry operating under a limitation plan, he held, the tendency, when demand falls off, is to seek additional limitation rather than the readjustment of prices.

Herbert Gutterson, of the Carpet and Rug Code Authority, warned that "regimentation of machines is surrounded with pitfalls," and "gives inefficient producers business to which they have no right." He urged that industry should not seek to cut production but should avoid a situation where output would overrun demand. He pointed to the production control section of his industry's code as an example.

F. J. Torchiana, of the Upholstery and Drapery Code Authority, declared that his firm, Collins & Aikman, of New York, favors still shorter working hours than those which had been prevailing but opposes arbitrary reduction of the operating hours of machinery. Production can be controlled in more intelligent ways, he contended. Limitation means unemployment, monopoly, and higher prices, he argued. The witness advocated in place of limitation, no sale below cost, minimum standards of quality, and a system of firm quotas based on previous sales with provision for expansion.

Father Francis J. Haas of the Labor Advisory Board insisted that inefficient units in industry should not be protected.

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Foreign Trade Policy

FOREIGN trade no longer is a commodity proposition; it has become a major political and economic policy of the administration. It no longer is a job of promotion intended to take care of some of our excess manufacturing capacity. It is more than a centralizing of the trade promotional activities of the Federal Government. It is a plan which contemplates a material increase in our imports. It cannot help but bring about revolutionary changes in certain activities in an effort to help the greater number by increasing the ability of foreign nations to buy in the United States.

The export banks are expected to play an important part in the plan. Some of the tariff reductions will be made with the understanding that the amount of the reduction will be deposited in the export bank to be used only for the purchase of American goods. This seems to be about the only way in which American textiles can be assured of a part of the benefits that would come from a bargaining tariff.

Consolidation of all the foreign trade activities in one agency is believed to a part of the plan. It is felt that too many agencies are dealing with foreign trade. Here are some of them: Commerce Department; State Department; Agricultural Department; Congress; NRA; AAA; RFC; and the Tariff Commission.

Labor Under NRA . . .

A FLASH PICTURE OF FACTS IN REPRESENTATIVE TEXTILE CENTERS

WHAT has been the effect of the NRA upon relationships between management and labor? This question is asked probably more often than any other one, in connection with the recovery program. Most attempts to answer it are from partisan sources; and they contradict each other just as all such statements do. To get a flash picture of the actual effects in representative textile centers North and South, the editor of TEXTILE WORLD asked his New England and Southern editors to make trips through their respective communities; to see representatives of management, labor, and the public; and to submit reports on these calls. The gist of these reports is summarized below. They refer primarily to the cotton branch.

It should be realized of course that it is not within the scope or the possibilities of an investigation of this type, to check issues of fact as to individual complaints. The purpose of this study is to present an over-all picture of effects, generally.

The Southern Section

◆ *Our Southern editor summarizes results of his investigation as follows:*

1. Union membership greatly increased in all sections since the NRA program went into effect.

2. Basic relationship between employer and employee generally healthier, particularly because of higher wages and shorter hours, but NRA gives labor opportunity for charges of code violations.

3. Marked change in employee's attitude toward union affiliation because of the "collective bargaining" clause in the National Industrial Recovery Act. Workers now willing to openly discuss their membership and union activities.

4. Labor leaders are selected with more care than was the case in previous efforts to unionize the South. More conservative type of organizer has been placed in the field.

Charlotte-Gastonia Area—Labor conditions in North Carolina, as revealed in an investigation of the cotton manufacturing center within 50 or 60 miles of Charlotte and Gastonia, are not as serene as they may appear on the surface. Recent disturbances in rayon weaving plants, resulting from slight increases in the number of looms per weaver, which labor leaders insisted were in violation of the code regulations against stepping up machine loads, served to disclose the strength which the United Textile Workers of America has gained in this area. Although these outbreaks did not occur in cotton mills, and fortunately did not result in serious interruption of production, they may be regarded as indicating the type of resistance that will meet changes which unions interpret as violations of the cotton-textile code.

Efforts of union organizers have been increased considerably since the NRA program went into effect. When criticism of their arguments for union organization was heard, it being reported that workers were told that they *must* join the union in order to obtain full benefits of code provisions for labor, organizers began searching for violations of the code. Investigations in the Charlotte-Gastonia area brought to light evidence that workers were led to understand, either by implication or direct suggestion, that the "collective bargaining" clause of the National Industrial Recovery Act actually was in the nature of a mandate from the Government to become affiliated with labor unions. Since this argument has been pretty generally deflated by the statements of leading manufacturers, and by comments in the newspapers and magazines, unions have directed their attention to what they hold to be code violations. Consequently, the worker is told that he needs the union to protect him against infractions of the NRA restrictions with regard to minimum wages, maximum hours, increased machine loads, and other points relating to labor.

Representatives of organized labor, although refusing to make definite statements as to increases in union membership since the code went into effect, if they actually have any figures on this trend, variously estimate that 40% to 50% of workers in the Charlotte-Gastonia area are now on the union rolls. Many new local charters have been granted in this section by the United Textile Workers of America. Labor leaders assembled at a meeting in Salisbury, N. C., Feb. 17 and 18, called to consider further plans for organizational effort in North Carolina, heard Emil Rieve, president of the American Federation of Hosiery Workers, predict the adoption by the NRA of a plan, sponsored by the A. F. of L., to reduce the maximum work-week to 30 or 32 hours throughout America.

Greenville - Spartanburg Area — Our study of conditions in this section brought to the front more clearly than anywhere else the great benefits that have come to labor by virtue of NRA regulations as to minimum wages and maximum hours. Merchants in these cotton manufacturing communities are 100% for the NRA program as reflected in the cotton-textile code specifically. The expansion of purchasing power of mill workers, plus the increased leisure which they have for shopping and for utilization of consumer goods, have exceeded the most optimistic expectations of these retailers. It is doubtful if the labor unions are making as much progress in this area as in certain other sections of the South.

On the other hand, more frequent criticisms regarding violations of the code were heard from labor leaders, among these charges being: (1) discharge of workers for membership in the union; (2) increases in the machine loads ("stretch-out"); and (3) failure to observe the minimum wage specified by the code. In addition, labor leaders have voiced objection to the practice of "speeding up" machinery to eliminate workers, and criticized the slowness with which action is taken on complaints regarding code violations. With the cooperation of a member of the State Industrial Relations Board, a recent strike in the Greenville district was settled. The protest in this case was against the dismissal of an overseer, but the question of machine loads and union recognition also entered the picture. In fact, in negotiations between employee committees and the mill management, where union leadership exerts an influence, efforts are usually made to secure such recognition of the union by employers.

Atlanta-Chattanooga Area—In this area, as in others investigated, reports of code violations by cotton manufacturers were heard, but it is not within the scope of this study to either confirm or repudiate these charges. Indeed, it would be virtually impossible for the writer to follow up such reports and get the facts in each case. For example, union organizers declared that workers were being discharged because of membership in the union, whereas one manufacturer admitted that certain individual workers had been dismissed, but that the only real reason for this action was that the time required by their duties as officers in the local had caused them to neglect their work in the mill. Obviously, each individual case of this kind must be judged in terms of its particular circumstances, but the conclusion likely would depend upon which side of the fence one happens to stand.

The union has been gaining in membership in the Chattanooga-Atlanta area, more in the cities than in the detached mill vil-

ages, because the location of the small isolated communities and the mill village set-up serve to discourage effective labor organization. Some mills, however, have been unionized 80% or more, according to labor leaders, but it is doubtful if as much progress in this direction has been made in this area of the South as in those previously discussed. The United Textile Workers of America, profiting by unhappy experiences with outside organizers in the past, has attempted to select for this campaign only southern men, and to put the more conservative type of labor organizer in the field. The Georgia Industrial Relations Board has been cooperating effectively in adjusting matters within its jurisdiction, but delays in appointments for the Tennessee board made it impossible for it to function until recent weeks.

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New England Section

◆ *Our New England editor summarizes results of his investigation as follows:*

1. So far as the cotton industry of New England is concerned, there is little worry about the labor situation in general and even less about the "collective bargaining" clause in the code. It is everywhere admitted that labor is in a far better bargaining position than a year ago, due to larger payrolls, but few would champion conditions as they existed then and leaders of both manufacturers and laborers view the present balance of power as satisfactory. Union membership has increased markedly, but as will be seen, along logical lines.

2. Looking to the future, there are two possibilities of trouble, and they are both remote at present. Where unions are established, there always exists the chance of a "fire-brand" making a hue and cry about the regular leaders—who have had a cooperative attitude—having "sold out" to management. On the other hand, where unions have not been established, there is the inclination for them to do something spectacular once they have a toe-hold in a plant. New England, however, is pretty well pleased with the business change since last year and isn't looking for trouble.

New Bedford—One point must be clearly understood in considering the status of labor, and particularly union labor, in New Bedford under the NRA; the changes have been due far more to the economic consequences of the Act than to the labor clauses. Collective bargaining has been tacitly recognized for years, and the strength of labor has fluctuated as employment and total payroll have fluctuated. The present condition is more the rule than the exception.

No one denies that the unions are more powerful than a year ago. Exact figures are not obtainable for a year ago, but it is an economic fact that when the manufacturers are flat on their backs there aren't many workers on the payroll to pay union dues. Under present economic conditions, about 50% of the 25,000 textile workers are members of a union. The unions, however, are more powerful than their numerical strength would indicate as they control the skilled workers.

The set-up is along craft lines; there is a weavers' union, a ring spinners' union, etc. There is also a coordinating body, known as the New Bedford Textile Council, made up of four delegates from each of the nine craft unions. The latter are all affiliated with the U. T. W. and the A. F. of L. Company unions exist in the tire-fabric mills, which are a group apart.

On the other side of the fence is the New Bedford Cotton Manufacturers' Association. According to an unwritten agreement, the rule of procedure in a dispute is as follows: A worker with a grievance may treat directly with the management, or he may ask the secretary of his craft union to carry on negotiations; if, after a reasonable time, the question is not settled, representatives of the Textile Council and of the Manufacturers' Association may enter the picture to assist in a solution. On any broad question such as a strike, the rules of the Textile Council are reasonably conservative; two-thirds of the workers in each craft must vote for such a move, and a majority of the crafts.

Since, then, both manufacturers and workers have benefited by the changed economic conditions, which has gained the upper hand? Apparently neither; labor was even further below normal a year ago than the manufacturers, and a reasonable balance has been attained again. As to the future, there will always be grumblers in both camps—particularly when there are lay-offs and/or unsatisfactory business—, but the fact that leaders on both sides are reasonable, and calm, augurs well. Naturally, the NRA, with its radical changes in hours and wages, brings up a lot of questions, but they have best been described as "mosquito bites."

No survey of New Bedford would be complete without some mention of the change that has come over the community: A year ago there was gloom, a sense of strain, dark stores; today there is even a certain evidence of gaiety. Store sales have picked up, and, an even better omen, credits have improved steadily since last September. The community, as such, is "sold" on the NRA.

Fall River—Collective bargaining has been a factor in the Fall River situation for some 40 years, so the textile code brings nothing new in this respect. Conditions closely parallel those in New Bedford, where the unions, still in existence though weakened, have gained in strength because of the improved economic condition of the workers. Fall River will never again see the day when 35,000 to 40,000 employees were on textile payrolls—too many plants have been liquidated for that—but the fact that two 40-hour shifts are now legal, against the former single shift of 48-hours, coupled with the improved economic situation, keeps present employment between 15,000 and 20,000.

The unions have naturally benefited by the change and at least two or three groups of skilled workers are now 100% unionized to all intents and purposes. Unlike New Bedford, the five strongest craft unions are independent and not affiliated with the U. T. W. Representatives from these five crafts make up the Textile Council, which deals with the Fall River Cotton Manufacturers Association on matters of general interest, the last joint meeting being held to settle on differentials to be paid skilled workers over the minimum.

The U. T. W. also has several craft unions and recently formed a new one covering warp tieing-in operatives, etc. There are few evidences of cooperation between the U. T. W. and the local group, but the latter dominates at present.

City finances in Fall River are emerging from the deplorable state they were in a few years ago, and business men like to boast that their community, on a percentage basis, has benefited more by the NRA than any other.

Eastern Connecticut—The cotton mills of Connecticut are, in almost every instance, located in isolated communities, and each has its own peculiar problems. There are, however, certain generalizations that hold.

With the exception of an occasional craft union, such as the mule spinners', unionism has not been in evidence in the State. Under the textile code little apparent change has taken place, with mills that have had uniformly good employer-employee relations in the past being particularly immune to any outside influence. Employment is uniformly good (there is even an occasional shortage of skilled help) and the workers are inclined to let well enough alone. It is only natural that union organizers are anxious to extend their membership in this as in every other region, but progress here has been' nonexistent in many cases and slow in others.

Maunfacturers, as a group, are not worried about collective bargaining as such. What does cause them an occasional moment of uneasiness, however, is the thought that new union organizations are inclined to try something spectacular to attract attention. Such a contingency is placed well into the future as it is the general feeling that under present conditions the workers are not very good prospects for the unions.

Manchester (N. H.)—When one discusses Manchester he must, of necessity, discuss the Amoskeag Mfg. Co. The essential background of the labor situation is as follows: The workers have had some sort of a union since 1906; the strike of 1922, which lasted nine months, was disastrous for Amoskeag, but it just about wrecked the union; emerging from the strike with 160 members, the union was for years little more than a skeleton of the former U. T. W. power; from 1929 to early 1932, union membership increased to about 500; in late 1932 and early 1933 sufficient strength was gained to make a strike last spring effective.

This brings us to the latest development. Last summer, F. C. Dumaine, treasurer of Amoskeag, stated that the right of the workers to organize was recognized, and, since they chose to organize as an industrial union affiliated with the U. T. W. and A. F. of L., the management would deal with such a union in the future. (The A. F. of L. in the past has favored the craft rather than the industrial union.)

Amoskeag is practically 100% unionized at present. Relations between management and labor are apparently on a sound basis, and there is practically no evidence of bitterness left over from the strike of last spring. The management faces the situation as it exists—not as it possibly might want it to be. The followng approach to a problem is typical: If there is discussion concerning the task to be given an operative, a time-study man representing the company and a time-study man representing the union go into the mill and work side by side; both sign the report and future discussion is on the basis of this factual evidence.

The mill has been operating at a much higher rate than a year ago and present employment is around 9,000.

FOUR DIVISIONS OF TEXTILE INDUSTRY HELD FEBRUARY

MEETINGS

FEBRUARY and early March were prolific with association or industry-wide meetings. Silk, wool, underwear and outerwear were the major branches represented in these activities. For most of them the gatherings were annual events, though enhanced in importance and meaning this year by the responsibilities which NRA has placed upon the industries in matters of self-government.

The following reports tell the stories of the four meetings:

New Identity Inspires Optimism At Annual Silk Dinner

OPTIMISM — the optimism that comes of modernization, reorganization and new blood—was the keynote of the first annual dinner of the Federated Textile Industries, Inc., successor to the Silk Association of America, Inc., which was held Feb. 13 at the Waldorf-Astoria Hotel, New York. While sociability was the aim of the evening, and plenty of good-humored quips were heard regarding the oft-changing nomenclature of the organization, one could sense at the gathering a deep-rooted realization of the new era now opening for this branch of the textile industry.

This spirit found expression both in the formal addresses of scheduled speakers and in the table conversation of the 1,000 trade representatives who attended. Three main aspects lent distinction to the dinner: First, it was the initial national gathering of the new associational identity; second, it marked the formal introduction to the federation membership of Paul C. Debry, as president; and third, it permitted a general review of progress since enactment of the silk textile code.

In explaining the transition of the industry from the Silk Association to the F.T.I. which topic constituted the keynote of his address, Mr. Debry said this was in line with the new national trend. He paid a graceful and sincere tribute to the Silk Association for its historic career and achievements through 62 years, but pointed out frankly that it had many weaknesses. One of these weaknesses, Mr. Debry contended, was that the association had assembled together in a homogeneous group, various branches which had conflicting interests. The new set-up is expected to solve this problem through giving individual identity to branches.

Various aspects of the NRA were discussed by other speakers. Lucius R. Eastman, Government representative on the Silk Code Authority, discussed the relationship of the silk industry to the new Federal set-up. The chief significance of the NRA, he said, is that it means the substitution of group action for the old-time individual action.

Various vital points were covered by Blackwell Smith, associate counsel of the National Recovery Administration, who devoted himself to the Washington aspect. Remarking that silk leaders had expressed the hope that some example would be made of the industry's chiselers, Mr. Smith announced bluntly that "we will make examples for you soon enough—perhaps too soon, depending on who you are." He followed this, however, with the declaration that the silk industry as a whole has been doing its part very satisfactorily, and he rather wished other industries had done as well.

A message of greeting and good-will was conveyed to the association from the silk industry of Canada, through John Cowling, president of the Silk Association of Canada.

The reorganization of the association and the subordination of silk as a fiber was reflected in the attendance at the dinner; the rayon yarn industry was well represented.

Among the various sub-divisions of the Federation represented were: The Broad Goods Weavers Association, the Fashion Fabrics Council, Ribbon Manufacturers of America, Underwear Fabrics Association, tie fabrics group, raw silk importers, silk thread and floss industry, Thrown Yarn Council, Woven Label Manufacturers Association, Velvet Manufacturers Association, Uptown Credit Group, spun yarn manufacturers, Shoe Fabrics Council and commission throwsters' and hosiery manufacturers' groups.

Underwear Institute Reorganizes On Permanent NRA Basis

DEVELOPMENTS which are likely to influence the history of the underwear industry for years to come were compressed within the narrow compass of a single day, when the Underwear Institute held its annual convention at the Mayflower Hotel, Washington, on Feb. 20. Included among the major accomplishments were: Reorganization of the Institute to provide more equitable representation of all groups subject to the underwear code; completion of a "reasonable cost" definition; and the formation of a tentative plan by which the National Association of Hosiery Manufacturers and the Institute would jointly form a corporation to assume management of the Knitting Arts Exhibition in Philadelphia as an annual event.

The reorganization plan, which was approved by the 200 manufacturers in attendance, provided for a set-up of 14 groups and subgroups covering all branches of the industry. In his address as Institute president, E. J. McMillan, of Standard Knitting Mills, Knoxville, Tenn., explained that the change was made on the premise that the industry may expect to operate for some years under certain of the NRA provisions.

The Institute elected Sherman P. Haight, treasurer of E-Z Mills Co., New York, as president to succeed Mr. McMillan. Other officers elected with Mr. Haight were: Arthur Reis, Robert Reis & Co., New York, vice-president; Horace A. Carter, William Carter & Co., Needham Heights, Mass., second vice-president; and O. W. Gridley, Utica Knitting Co., Utica, N. Y., as treasurer.

T. H. Mueller, of Bethlehem, Pa., outlined the plan under which the Institute and the Hosiery Association are cooperating on the Knitting Arts Exhibition to be held next month in Philadelphia. This cooperative arrangement, he pointed out, is of an experimental nature and he added that a permanent exhibition corporation would be formed if the test proves successful.

Roy A. Cheney, secretary of the Institute, devoted his annual report largely to a review of the progress made toward compliance with the code. Emphasizing the need for wholehearted conformity, Mr. Cheney warned that "those who do not comply will receive their just reward."

The question of what policy the underwear industry should adopt on the current agitation for a 32-hour working week received close attention by those attending the meeting, but no definite decision was reached.

Prospects for enforcement of the code clause forbidding sale of merchandise at less than "reasonable cost" were strengthened when the Institute's cost committee submitted its definition on "reasonable costs." The sense of the definition is that "reasonable cost" shall

include only the following: (a) Cost of manufacture, (b) cost of merchandising and (c) cost of administration and general operation. The definition was submitted by James Roger, as chairman of the cost accounting committee.

A. D. Whiteside, Divisional Administrator of the NRA and chief guest speaker at the convention said that continued business improvement hinged largely on recovery within the capital goods industry. He thought that in code compliance true adherence to the principles of the NRA was more important than letter-by-letter obedience. Deputy Administrator H. B. Ludlum, another speaker, told of progress made toward adjusting inter-code difficulties between the underwear and the outerwear industries.

It was disclosed at the meeting that E. R. Van Vliet, vice-president of Tubize Chatillon Corp., had been appointed to two key positions—membership on the underwear industry's executive committee and on the Underwear Code Authority. Especial interest attached to this move because Mr. Van Vliet's company is a foremost manufacturer of tubular knit underwear fabric and has been active in trying to get a separate code for that division. Subsequently, Mr. Van Vliet stated that pending clarification by the NRA of the tubular fabric division's code status, he could not serve in the posts to which the Underwear Institute had elected him.

Pros and Cons of Control Engage Wool Mill Men After Annual Meeting

FOLLOWING two industry-wide meeting the Wool Textile Code Authority went to the Washington NRA conference early in March virtually without mandate from its industry. Action by a series of votes at the last meeting (Hotel Commodore, New York, March 1) blocked the program which duly appointed committees had formed.

The matter of hours limitation was defeated principally by carded woolen mills which claim such unbalance of equipment as to demand freedom in working preparatory and spinning departments. The matter of machinery restriction was defeated by the industry as a whole, for not a single standing vote was registered in favor of adopting either of the two proposals bearing on this subject.

Toward the close of the March 1 meeting, at which Arthur Besse, chairman of Code Authority, presided, some recognition that the industry was shirking a duty was evident in the fact that motion to adjourn was interrupted several times over about a 15-minute period with compromise proposals, although none of them elicited much general enthusiasm. It was voted to appoint another committee to reconsider the matter of limitation and to set up a plan on which agreement might be reached. The proposals which were voted down were as follows:

A. No work shall be permitted between the hours of 12 P. M. and 6 A. M.

B. The hours of labor shall be eight hours a day and five days a week. No work shall be permitted on Saturday or Sunday, except to compensate for inequalities and State regulations or any other special emergencies and only when specifically authorized by the code authority.

C. No productive machinery which has been idle for the two years ended February 1, 1934, shall again be operated without securing a special permit from the code authority.

D. No manufacturer shall purchase or install any new productive machinery after March 1, 1934, without securing a permit from the code authority. This prohibition shall not apply to machinery used for preliminary processes installed solely to balance production of the mill.

The Code Authority had hoped through the passage of this program to be able to remove all other restrictions on machinery and yet to hold the production of the industry within reasonably flexible bounds.

The other matter considered March 1 was the setting of wage minima for various classes of jobs in the mill for the purpose of preventing the Code's minimum wage from becoming the maximum among the price and wage chiselers. Col. Millard D. Brown of the committee on wage brackets, said that weavers on woolen automatic looms in Maine, New Hampshire and Vermont were being paid rates that varied all the way from 28c to 72c per hour. It was suggested that number of looms per weaver was a factor. The committee's proposal that a joint wage committee be set up composed half of representatives of the wool industry and half of representatives of labor appointed by NRA to establish minima for the various brackets which would be effective on adoption by the committee, was voted down, and instead a wage committee composed of mill men representing all sections of the country was set up to propose rates which will later be laid before the industry at a general meeting and, if adopted, be taken to Washington for a public hearing in order to be made part of the industry's Code.

The committee on sales promotion, Col. C. F. H. Johnson, chairman, made a progress report Feb. 14. Although its work is not yet completed it seems to offer the brightest spot for constructive accomplishment in the wool industry. The committee finds that nearly all proposals fall into one of two groups—a promotional campaign based on appeal to vanity as "dress-up and succeed," or a campaign to push wool goods in their present fields and to seek out new uses for them. The committee will lay a complete plan (including also details on its financing) before the directors of the N.A.W.M. for approval and they in turn will lay it before the industry.

The annual meeting of the National Association of Wool Manufacturers preceded the Feb. 14 meeting of the industry. At that formal meeting Arthur Besse was reelected president, Franklin W. Hobbs, vice-president, and Walter Humphreys, secretary and treasurer. Charles F. H. Johnson and Francis C. Luce were elected vice-presidents, succeeding Allen R. Mitchell and Richard Lennihan, respectively.

Outerwear Convention Converted Into Formal Code Hearing

SOMETHING new in the way of textile conventions was introduced when the National Knitted Outerwear Association helds its sixteenth annual meeting at the Commodore Hotel, New York, Feb. 13 and 14. In order to focus more directly on NRA code problems, the association abandoned its traditional form of convention and devoted most of the time to an Outerwear Code Authority hearing. August Egerer, president of the association, opened the meeting Feb. 13 with a review of progress made under the NRA. Two main points were stressed by the president in his address: First, the current trend toward self-government of the outerwear industry which has included decisive action toward eliminating trade evils, and, second, the significant growth of the national association which now numbers more than 450 mills.

A warning that the industry must do all possible to improve conditions of its workers, if it is to avoid being placed on a 30- or 32-hour week, was sounded in a very frank address by Harold R. Lhowe, Mr. Lhowe spoke in his dual office as executive director both of the association and the Code Authority. His address made a deep impression and was one of the outstanding features of the convention. He deplored the "greed of industry generally" which he intimated was largely responsible for the sentiment favoring a shorter work week. The outerwear industry needs 40 hours to meet current demand, Mr. Lhowe pointed out, but he said the industry may find this schedule reduced unless every knitter individually continues to give the welfare of his workers paramount consideration.

Sitting as the Outerwear Code Authority, the officers of the association and their co-members on the authority, heard spirited arguments for various reforms in the industry. These proposals included: Recommendations to end style piracy; to eliminate payment of any form of rebate or commission to resident buyers or commission offices; to set opening dates for seasonal showings; to establish fixed price ranges on all lines; to restrict distribution of samples; and to prohibit the small manufacturer from classing himself as an employee in designations for code purposes. Strong opposition to the fixing of price ranges developed, during the two-day session; the Code Authority appeared to be somewhat in sympathy with the plan as a means to halt cut-throat competition.

The convention formally concluded with the annual banquet of the association which was held Feb. 14 at the Hotel Astor, New York.

GOVERNMENT LOANS FOR

Textile Industry

By Henry G. Lord

THE cotton industry was the first to formulate and get approval for its code, and all divisions of the textile industry are now functioning under the NRA. With corresponding promptness certain leaders in the textile industry and banking interests associated with textiles, had as early as September, outlined a plan to General Johnson and to Chairman Jesse H. Jones of the R.F.C., which had for its object government aid in supplying additional working capital required in so many instances by mills, because of higher labor, material and processing costs and generally increased volume of business coming after long years of depression and depleted reserves. This plan is quite distinct from the government intermediate credit banks which Washington advices describe as about ready to be formed under Federal Reserve Bank auspices for the purpose of financing and stimulating the capital goods industry. It ties in with the Reconstruction Finance Corporation, although it sets up an intermediary organization partially financed by the borrowers themselves.

Limit Purposes of Loan

Its capital consists of 20,000 shares, without par value, all of one class, to be sold at the price of not less than $100 per share. Applicants for loans, who must furnish security satisfactory to the Mortgage Corporation, and also satisfactory to the R.F.C., with which its loan will be repledged, must also agree to apply not less than 10%, nor more than 20% of the loan, to the purchase of capital stock of the Mortgage Corporation. The security would include a first lien on fixed assets of the applicant and the loan would be made for a period not to exceed three years and to bear interest at the rate of 6%. All monies loaned by the Mortgage Corporation would be procured by it from the R.F.C., so that the applicant for a loan really receives only 90% in cash or credit and must invest the other 10% in stock of the company. The Mortgage Corporation would borrow money from the R.F.C. at 4% and loan it at 6%, so that from time to time its accumulated income, less expenses, would be available for distribution to the stockholders, who are the borrowers, with the consent of the R.F.C.

The details of this interesting plan were worked out some time ago and a considerable number of applications for loans have already been made and placed before the R.F.C., but so far as known none has been acted upon favorably after several months' delay.

Limit Purposes of Loan

The purpose for which loans will be made, to assist in the National Recovery Program, are explained in the circular issued by the R.F.C. as follows:

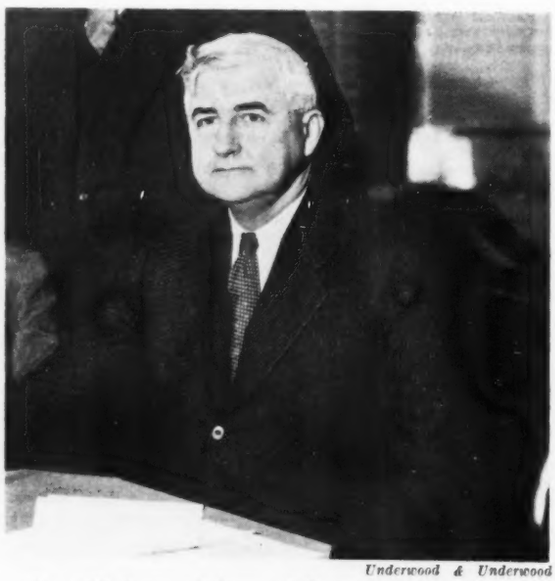
1. For the purchase of material for manufacture.
2. To cover the actual cost of labor in the manufacture and processing of material.
3. To assist merchants and others especially affected by the National Recovery Administration program.

The last clause might be construed rather broadly to include loans for the purchase of equipment, but the present policy of the R.F.C. is not to make loans for this purpose.

The intermediate credit banks, of which mention has been made, are planned on the regional lines of Federal Reserve districts and it is presumed that the money borrowed from these banks will be earmarked for definite equipment purchases and the loans will be carefully scrutinized with relation to the code limitations.

However one may feel about the limitations on the purchase of equipment intended for expansion, there is surely enough opportunity for the wise expenditure of large sums for replacement and modernization. There never has been a time when textile manufacturers have been more "equipment minded" than today. Not only the limitations in the code, but the radical improvement in machinery and equipment, as well as the steady wearing-out of machinery during these years of depression, and especially the possibility of making a little profit, have caused them to give much more thought to equipment-buying than they may be willing to admit to salesmen. Many surveys have been made and plans formulated which only await the necessary financing.

The Government has been holding out hopes of R.F.C. loans to industry for months past and the circular referred to gave reasonable hope that funds were available for loans on the conditions outlined. Apparently, the disposition to loan freely is lacking or else the machinery for passing on applications is functioning very slowly. The applicants for loans are having a hard time making out a case. Those that are able to comply with all the requirements imposed are apparently expected to be in a condition where it would seem that no loans for working capital or any other purpose were needed.



Underwood & Underwood

Jesse H. Jones, chairman of Reconstruction Finance Corp., presiding over his board in Washington

Outerwear Show

KNITTING AND SEWING MACHINES AND YARNS EXHIBITED IN NEW YORK

ALTHOUGH fewer machines were exhibited at the second Knitwear Industrial Exposition, held under the auspices of the National Knitted Outerwear Association at Grand Central Palace, New York, during the week of Feb. 12, than at the first exposition a year ago, the number of exhibitors was greater. Attendance was slim on the first day or two, but improved as the week progressed. Exhibitors reported a number of worth-while sales.

Fine-Gage Pattern-Wheel Machine

One of the newest of the machines shown was an 18-in. pattern-wheel type having 28 70-gage latch needles to the inch. This machine, which was said by its manufacturer, the Supreme Knitting Machine Co., Brooklyn, N. Y., to be the finest-gage machine of this character ever built, was operating with 24 feeds, each equipped with a pattern wheel. A new attachment by which a knob on each feed can be given one turn to change quickly from pattern to plain or vice versa was shown on this machine, and a similar attachment operated automatically was demonstrated on a larger machine of coarser gage nearby. The fine machine, it was announced, will be built in any size from 7 to 28 in.

A new stop motion for circular machines was exhibited in the booth of Jacob Wachsman, Brooklyn, N. Y., and was also demonstrated in operation on a 24-in., 32-feed, wheel and tuck-bar scarf machine shown by H. Brinton Co., Philadelphia. Riveted construction is said to insure the insulation of the stop motion and render it shock-proof, while a self-rubbing contact prevents dirt from interrupting the circuit. Other features of the 14½-cut Brinton machine equipped with the Wachsman motion included wheels and tuck bars, inserted-wall cylinder, convertible sections, 32-end bobbin table, lay-in parts on 16 feeds, automatic side, free wheeling, and d.-c. motor drive.

Other machines in the exhibit of H. Brinton & Co., which was the largest in the exposition, included an 8-in., 4-feed, 22-cut scarf machine with wheels and tuck bars, 12-end bobbin table, inserted-wall cylinder, 16-end stop motion, automatic side, bobbin plate stand, and 4-color stripers with cutters and clamps; an 18-in., 8-feed, 10-cut rib-body machine with vibrating dogs, 4-color stripers on 2 feeds, individual control on the other 6 feeds, selvage welt, 16-end table, electric ring, and 564x564 needles; an 18-in., 24-feed, 22-cut scarf machine with wheels and tuck bars, inserted-wall cylinder, convertible sections, plain left side, 24-end table, electric ring, and 1,248 needles; and a 22-in., 16-feed, 6-cut scarf machine with wheels and tuck bars, special cylinder, convertible sections, plain left side, 16-end bobbin table, stop motion, and free wheeling.

Several improvements were demonstrated in flat machines. One of these was a links-and-links jack with a flat spring inserted in a depression in the side. This jack, known as the Zimic spring type and offered by the Queens Machine Corp., Brooklyn, N. Y., is intended to keep the needles from extending beyond the needle bed and thus permit racking on one or both ends of the machine without danger to needles, beds, or fabric. The spring, by serving to keep the jacks firmly and snugly within their channels, permits speeding up the machine. The Queens automatic links-and-links machine was shown equipped with a single lock for operating the high and low sinkers on the front needle bed and making the link and flat stitch in the same operation. Links-and-links and other flat machines shown by Dubied Machinery Co., New York; Grosser Knitting Machine, New York; Robaczynski Machine Corp., Brooklyn; and Supreme Knitting Machine Co., Brooklyn, were featured by improvements in construction giving increased sturdiness and lightness of parts and simplifying the operation and maintenance.

As was the case at last year's exhibition, manufacturers of sewing machines stressed the continued progress which is being made in obtaining higher operating speeds. New equipment shown by Merrow Machine Co., Hartford, Conn., included the new A Type machine operating at 4,800 to 5,200 r.p.m. for seaming silk underwear, and the 15 Class shell-stitch machine. Reece Button Hole Machine Co., Boston, featured two new machines—one for sewing imitation sleeve buttonholes; and the other for trimming both thread and cord on a square-ended sack-coat button hole. New buttonhole machines exhibited by Singer Sewing Machine Co., New York, were the model 99W90 machine producing a double chain-stitch eyelet-end button hole with reinforcing cord top and bottom, and the Model 71-112 thread-trimming machine giving a reinforcing cord. Other new equipment displayed by this company included the Model 85SV5 sewing machine for producing a banding or blanket-stitch neck on sweaters; the Model 81-53 high-speed overseaming machine operating at 5,000 r.p.m.; and the Model 105-6 machine for stitching and trimming clothing seams. Union Special Machine Co., Chicago, introduced the Style 39200 AJ high-speed machine for seaming operations on sweaters and similar garments and equipped to insert a reinforcing tape such as is required on shoulder seams; and the Style 39200 AU combination blind-stitch hemming and plain overseaming machine.

For Finishing Outerwear

For pressing sweaters, bathing suits, underwear, scarfs, mittens, etc., Grand Rapids Textile Machinery Co., Grand Rapids, Mich., introduced the Roto Press, a compact device used like an ordinary mangle, but employed for steaming the goods, as well as applying heat and pressure. The machine is suitable for pressing garments either flat or folded and imparts a dull or a bright finish as desired to wool, cotton, or mixed goods. A horizontal steaming and tentering machine for flat-knit fabrics—as well as for circular-knit goods which show a tendency to curl, roll, or distort—was shown by the Harlem Knitting Machine Co., New York. This machine, which was first exhibited at the Philadelphia Knitting Arts Exhibition last spring, consists of a steam box, chain tenter adjustable to width, and a rolling device.

In its exhibit of label and box marking machines and ticket and sticker printing machines, Markem Machine Co., Keene, N. H., featured a new hand-operated machine for printing on cone stickers. This machine, which is particularly designed for use in small mills, produces 150 stickers per minute. If desired, a perforating attachment can be used in place of the cut-off blade, or the labels can be produced in a continuous roll.

Needles, sinkers, jacks, and other accessories were exhibited by Arrow Needle Co., Franklin Needle Co., Loyal T. Ives Co., and Torrington Co. Knitting yarns, including many novelties, were shown by some fifteen exhibitors.

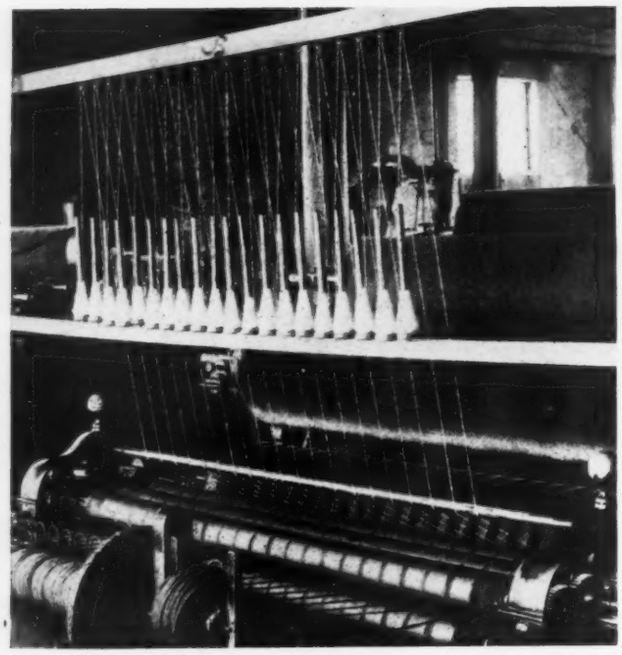


Fig. 1. Feeding the cotton yarn in preliminary experiment

TWO METHODS FOR EQUIPPING WOOLEN CARD TO PRODUCE *Core*

WE WERE faced with the problem of utilizing our coarse-gaged hosiery machines to produce something salable, and it occurred to us that if we could make a core yarn with a cotton thread on the inside and a wool shoddy on the outside, we could produce a men's heavy woolen sock which might find a market. We produced a rack to hold some bobbins of yarn at the front of the finisher card, as illustrated in Fig. 1, and we then found in a few minutes that the carding could be handled satisfactorily. We took a spool of the roping to the mule, gave it a full draft with as little twist as possible, and found that we could produce a good yarn without any trouble. We carried out our idea more completely and produced a large number of cases of strong and serviceable socks, as illustrated in Fig. 2.

Recommended Procedure

We recommend the following procedure to those who may wish to duplicate our method of carding:

Procure two bars of soft steel or iron $1\frac{1}{4}$ in. wide and $\frac{1}{4}$ in. thick and long enough to reach across the card. Fasten these to the frame on each side at a point just above the wipe roll or rub roll, one for each ring doffer. Start at one end and plumb down to drill a hole in the center of the top bar so that a thread will be guided just clear of the back of the rub roll and onto the center of the doffer ring. The bar should be set low enough to guide the thread positively to the center of this ring in order that the action of the rub rolls will cover the core evenly. The holes in the bar should be drilled just large enough to allow the thread to pass through freely. After the first hole has been drilled exactly right, if the card has 40 ends, drill 39 more, spacing them so that nineteen holes will guide threads for the top doffer rings and twenty will guide threads between the top doffer rings to the holes in the bottom bar, which in turn will guide the threads onto the centers of the bottom doffer rings.

A stand for the cones or bobbins of cotton should be built along the lines suggested by Fig. 3. The lower shelf can be about 4 in. from the floor; and the upper shelf, about 4 ft. from the floor. The shelves should run the width of the card and should each be wide enough to hold twenty cones or bobbins, with two rows of seven and one row of six. Those on the bottom shelf must be spaced so as to come between those on the top shelf. The pins for the yarn packages should be long enough to hold the packages securely and prevent their tipping over when the card is running. Twenty holes must be drilled in the top shelf and porcelain tubes inserted in them to prevent chafing of the yarns from the bottom shelf as they pass through. Two uprights, say 2x2 in., may be fastened to each end of the stand at the center and a piece of the same material placed across the top at a level with a bar corresponding to the uppermost bar shown in Fig. 1, the latter being directly over the iron guide bar. Forty screw eyes may be inserted in both the cross-piece and the upper bar to guide

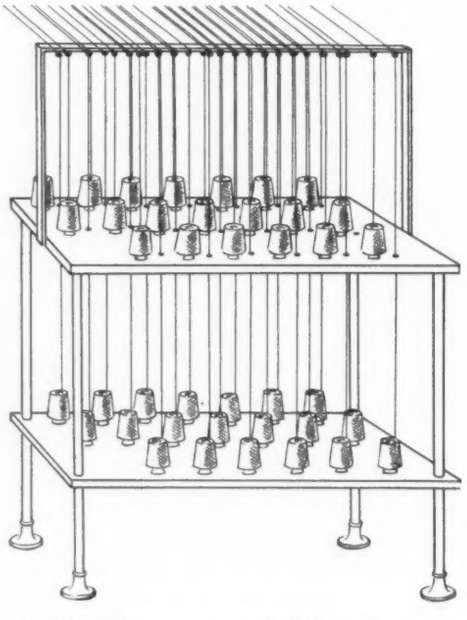


Fig. 3. Stand for cones or bobbins of cotton yarn

The first part of this article, describing the feeding of a single cotton core from individual cones or bobbins, is by G. E. Stevens; and the second, describing the feeding of a double core from jack spools, is by P. M. Crofts.

Yarn

Fig. 2. Fabric and yarn from men's core-yarn sock

the forty ends from the stand to the card. The core stand should be placed directly in front of the spool stand, but far enough away to leave an alley sufficient for doffing the spools of roping.

When a set of spools is doffed, the ends of roping must be cut with shears. While still new to the job, the tender will probably have to stop the card while doffing; but after some experience he will be able to change spools while the machine is running. Of course new cones or bobbins can be inserted without any necessity for the card being stopped.

Some carders prefer to wind the cotton core on jack spools and feed it to the card in that form, but with the method just described each end is independent and is drawn off only as it is needed. It is difficult to wind jack spools so that one end will not pull ahead of another and cause trouble. The jack-spool method also requires stopping of the card to tie in the 40 ends, and considerable waste is left on the run-out spools.

[Although Mr. Stevens' criticism of the jack-spool system seems well founded, it is the more common method; and, for the benefit of interested readers, we have asked P. M. Crofts to describe the equipment necessary for applying it, which he does as follows:]

An attachment for feeding jack-spooled cotton yarn can be easily and quickly made and placed on the card condenser frame. The cotton used should be strong enough to eliminate breakage as far as possible. About 20s is a good size. Two threads should be used for each end of roping made, because they serve as a binder for the fibers in the web and prevent slippage, which is a serious fault where a single thread is employed.

Application to Ring Doffer

The accompanying sketch (Fig. 4) shows a ring doffer delivering 72 good ends. The spools of cotton, *S*1 and *S*2, are held by means of brackets bolted to the sides of the condenser frame. Threads from these spools are unwound by the pull of the wipe rolls *W*1 and *W*2 after passing through the guides *G*1 and *G*2. These guides are bolted to the frame and may be made of a piece of steel $\frac{1}{4}$ by 1 in. Each guide has 72 notches at the top, two for each ring, spaced so that each web has two threads delivered to it about $\frac{1}{4}$ in. apart at its center. Slight friction should be applied to the spools *S*1 and *S*2 to prevent backlash. Weighted plates, hinged to rods at points *A*1 and *A*2, will serve the purpose very satisfactorily.

Great care should be exercised in the spooling of the cotton to prevent trouble at the card. Broken ends on the spools cause both waste and machine stoppage. A good stiff open-set fancy roll is best for this class of work. The surface speed of the fancy should be $6\frac{1}{2}$ in. to 5 of the cylinder surface speed. The roping should be well rubbed and made to spin at full draft.

By the use of an attachment similar to the one shown in the sketch, this yarn can also be made on a tape condenser.

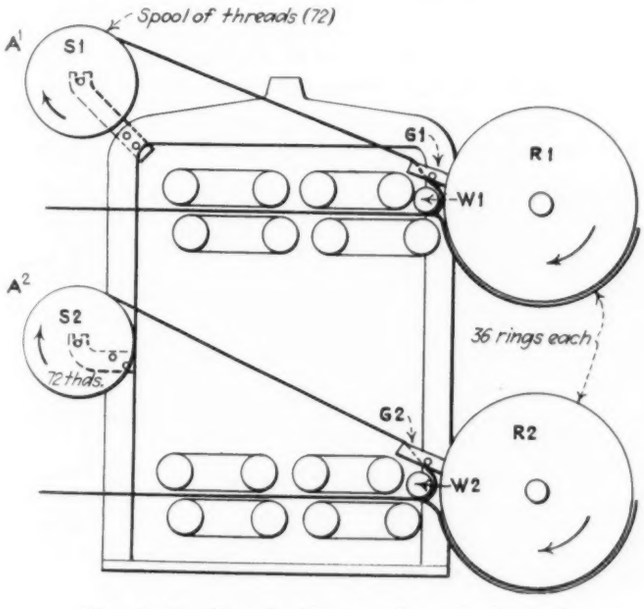


Fig. 4. Feeding double core from jack spools

Silk Weighting

ATTEMPTS TO SPEED UP PROCESS CONTINUE UNABATED

By Walter M. Scott, Ph.D.
Gustavus J. Esselen, Inc., Boston, Mass.

IN ORDER to get a true picture of the remarkable changes which have taken place during the last decade in the weighting of silk, it is advisable to review briefly the lengthy procedure which was considered to be necessary until a few years ago. The silk was treated prior to that time almost entirely by hand and always in skein form.

It was commonly weighted by means of natural extracts, such as logwood, cutch, gambier, sumac, etc., in combination with salts, principally of iron and aluminum. The process usually required a week or more to complete, and involved many changes of baths. Furthermore, the silk could never attain a very high degree of weighting by this procedure without a serious lowering of its tensile strength.

The foundations for the modern tin weighting procedure with alternating treatments in solutions of tin tetrachloride and sodium phosphate were laid about ten years prior to the beginning of the present century. In the beginning, the silk skeins were immersed in the various solutions, wrung out, and washed almost entirely by hand, with the aid of special splinterless wooden rods to keep them from getting hopelessly tangled.

The adaptation of the centrifugal to the impregnation with the tin and the phosphate solutions, was one of the first steps in acceleration, a special machine of this type making it possible for the manufacturer to combine some of the operations.

Another more or less coincident development was concerned with speeding up and increasing the efficiency of the washing of the silk skeins after impregnation with tin. This was accomplished by suspending the skeins over horizontal revolving porcelain spindles in such a way that, as they rotated, water was sprayed directly into the interior of each skein by means of a horizontal perforated water pipe directly below each spindle.

Development of Piece Weighting

The next step in raising the tempo of silk weighting was the substitution of piece goods for skeins. Along with other economical advantages, the processing of pieces could be so arranged as to make most of the weighting procedure practically continuous. Numerous attempts were made to include the tin impregnation as a part of this continuous process. However, until quite recently, the most satisfactory results were obtained by wrapping the pieces in bundles and treating them with tin solution in a centrifuge.

The next developments were largely along the lines of speeding up the machines. With the first piece weighting machines the operator was lucky if he could process the goods satisfactorily at a rate of 20 yd. per minute. However, with experience it was found that the speed of travel could be greatly increased. The following improvements contributed toward this end:

1. Changing the reels from circular to elliptical.

2. Lengthening the compartments and putting a reel at each end—both synchronized as to speed.

3. Making use of the principle of counter-current flow, whereby the goods leave the compartment at the end where the fresh water or solution enters.

As a result of these and other changes the speed has been raised to a maximum of 90 to 95 yd. per minute. It is probable, however, that most of the silk at the present time is washed and phosphated at an average speed of about 75 yd. per minute.

Completely Continuous Process

It remained for René Clavel, a Swiss chemist, to develop a procedure whereby the entire tin-phosphate cycle from start to finish was put on a continuous basis with the silk kept at full width throughout. As far as the writer is aware, this procedure has not yet been adopted to any large extent in this country, but it has been used successfully on a commercial scale in Switzerland. The details of this procedure were described in TEXTILE WORLD, Oct. 17, 1931. This method, in brief, is as follows:

The silk is first made more receptive for the tin by a pre-treatment in strong formic acid, using a protective colloid if necessary. After squeezing out the excess of acid, the following operations are carried out in succession:

1. Passage through an initial tin solution followed by a light squeeze and a 2-min. ageing in the air.

2. Passage through a second tin solution followed by a light squeeze, a 2-min. ageing, and a heavy squeeze.

3. Passage through a cold solution of monosodium phosphate, followed by the usual squeezing and ageing.

4. Passage through continuously changing wash water and through fresh water sprays followed by a squeeze.

5. Passage through a solution of disodium phosphate at 60° C. followed by a wash and a squeeze.

This entire cycle is repeated as many times as desired, and then the silk may be finished in the usual silicate bath.

In this process the silk remains for a relatively few minutes in each bath, as compared with the 30- to 60-min. periods of immersion in the tin and the phosphate solutions required by the processes mentioned earlier in this article. Furthermore, Clavel has suggested that the initial treatment with formic acid could be omitted, if the

requisite amount of this acid were added to the tin solution instead.

Weighting in One Bath

Not content with the savings in time and material noted above, Clavel states that it is possible to go still further along this line. Instead of treating the silk with tin and then with phosphate in separate solutions, these chemicals are combined in one solution, to which the silicate also may be added if desired. The precipitation in the bath, which would normally take place when tin and phosphate ions are both present, is prevented by (1) adding an acid or an acid salt to obtain a relatively high acid concentration, or (2) by adding a protective colloid, such as gum, gelatin or albumin. The protective colloid may even be used in addition to the acid.

For example, the weighting bath may contain tin tetrachloride, formic acid, sodium phosphate, sodium silicate and glue; all dissolved in a minimum amount of water. The silk is impregnated with this solution, run through a 10% solution of ammonium carbonate and dried without washing. It is finally scoured in a soap bath, followed by the usual rinse in cold or lukewarm water. Thus the whole weighting procedure is confined to one weighting bath, one fixing bath, one soaping bath, and one rinse. However, it is somewhat doubtful whether the weighting could be so evenly distributed throughout the silk by this one-bath method as by the multiple-bath system.

Padding With Tin Paste

One of the latest novelties in tin weighting is also advocated by Clavel. In this case the weighting procedure is more allied to printing than to dyeing technic. The tin tetrachloride solution is thickened with gum arabic, dextrin, or similar thickeners; and this paste is padded on one or both faces of the silk. The tin-impregnated silk may be aftertreated in a phosphate solution and then in silicate if so desired.

It is advisable to add to the printing paste either acids or acid salts, and possibly protective colloids, such as glue or albumin. Alternately, instead of adding acids to the paste, the silk may be pretreated with acids or acid salts in the presence of protective colloids. Acid phosphates or phosphoric acid may be added directly to the tin paste, in which case the silk, after padding, is dried in the air and then carefully washed to remove the excess paste or loading agent. Clavel specifically recommends a printing paste containing gum arabic, tin tetrachloride, formic acid, and sodium phosphate (or phosphoric acid in place of the formic acid and sodium phosphate).

Instead of padding the tin paste all over one or both surfaces of the silk, it may be applied in a pattern by means of an engraved roller. With silk which is so treated it is asserted that novel dyeing effects can be obtained by using certain mordant dyes which will color the weighted portions and leave the rest clear.

Lead Weighting

The use of lead in connection with tin for the weighting of silk is a recent development which has enjoyed increasing popularity among silk dyers and finishers during the last few years. While the use of lead was not designed primarily to speed up the weighting procedure, still it has that effect in practical application. The lead treatments add much more weight to the silk per cycle than the tin treatments. Thus, the desired total weighting can be obtained with fewer cycles and consequently within a shorter period of time.

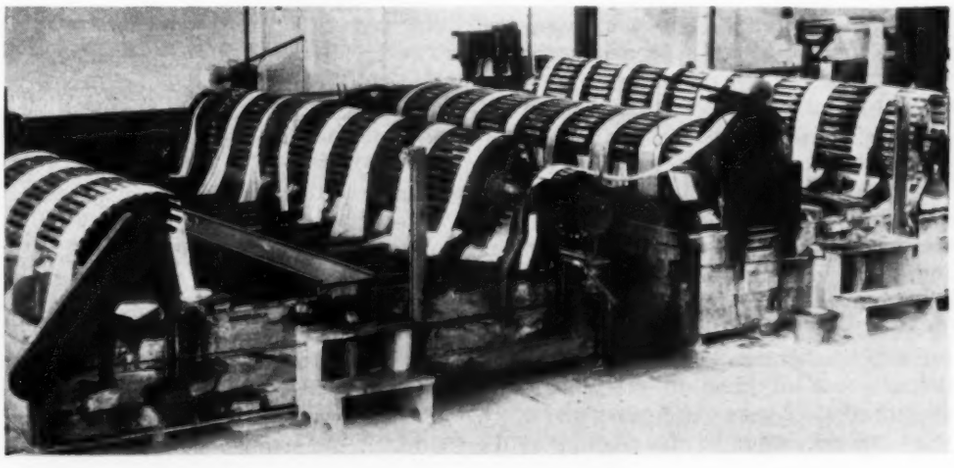
The common practice is first to give the silk a regular tin-phosphate cycle with the usual washings after the tin and the phosphate treatments. The silk is then acidified with dilute acetic acid and treated immediately with lead acetate, followed by the usual fixation with disodium phosphate. Because of the high atomic weight of lead, two of these lead-phosphate cycles are probably equivalent to three or four tin-phosphate cycles.

Weighting with Antimony

Antimony was suggested as a substitute for tin in the weighting of silk as early as the year 1917. However, it has never been used to any great extent commercially because of certain difficulties in the technic of applying it to the silk. Some recent experiments, with which the writer is familiar, have led to the development of a new and more satisfactory method of weighting silk by means of a solution of antimony trichloride.

It is believed that this method will make it possible to add an equal amount of weight to the silk in fewer treatments with antimony than with tin. Also the application of the antimony solution will be more in the nature of a quick padding, rather than a lengthy immersion. This, of course, will tend to bring about still further reductions in the weighting time.

The foregoing brief survey demonstrates the remarkable advances which have taken place in the practice of silk weighting. Already the time required to weight silk commercially has been reduced from a matter of weeks to a matter of hours. Recent developments point toward a further cutting of the present weighting time.



Short Warps and Tension

TWO MATTERS OF IMPORTANCE TO SILK AND RAYON WARPERS

By Fred J. Luettgen

A COMPLAINT that the first cut of a silk or rayon warp has run short in the weaving is periodic among most manufacturers. With philosophical resignation it has been accepted as inevitable. Attributed to undue waste, it has thus been permitted to continue.

In some mills an extra half yard is added to the first cut to allow for the twisters' waste, but still the cut continues short. With such a precaution one might expect the error to be quickly discovered; but the peculiar thing is that this particular fault is not caused in the weave shed. The error is committed in the warping department, due to erroneous marking of the spokes.

Practically every warper looks upon the numbers on the spokes of the wheel as identification marks for starting and cutting off the section, nothing more. Up to a short time ago, that was about all that was required of them. The majority of cut marks were divisible by eight and very little difficulty was experienced. Lately, however, the cut marks are of such odd lengths that they are apt to be put in on any spoke of the wheel. On these warps the first cut is frequently ½ yd. short. The result is that the twisting department or the loomfixer is accused of undue waste. Not a word about the warping department.

To understand this thoroughly, one must know the real reason for the numbers on the spokes.

The 8-yd. wheel being the one most commonly used, a discussion confined to it will be sufficient. The numbers on the wheel are placed there to identify the sixteen subdivisions in the circumference of the wheel. These subdivisions measure ½ yd. from spoke to spoke and are used to identify the length of a section longer or shorter than the circumference of the wheel. On one spoke of the wheel a number of pins are inserted to hold the sections. This spoke is usually marked "No. 1," but it would more properly be marked "No. 16."

Assume, by the way of example, that a warper is requested to make an 8-yd. sample warp. He will ignore the numbers and make one complete revolution of the wheel, cutting off on No. 1 spoke in spite of the fact that there are only sixteen spokes to 8 yd. Theoretically he has made 8½ yd., but practically he has made only 8 yd. by ignoring the numbers on the wheel.

The next warper is called upon to make a 10-yd. sample. He will immediately resort to figures and reach the conclusion that one revolution of the wheel plus the distance to No. 4 spoke will make 10 yd. on the wheel. The result is that he will make one revolution and cut off on No. 4 spoke. When he cuts off there, he is just ½ yd. short. As noted in the case of the 8-yd. sample, we stopped at No. 1 to make a complete revolution, so that there are only three additional half yards covered upon reaching No. 4 spoke, or 1½ yd., making the warp only 9½ yd. instead of 10.

The sample warps specified were used to simplify the explanation. A great many warpers would resort to practical knowledge on these warps, rather than to figures; but on full-length cuts they would become confused and confine themselves to figures only, thus committing this common error.

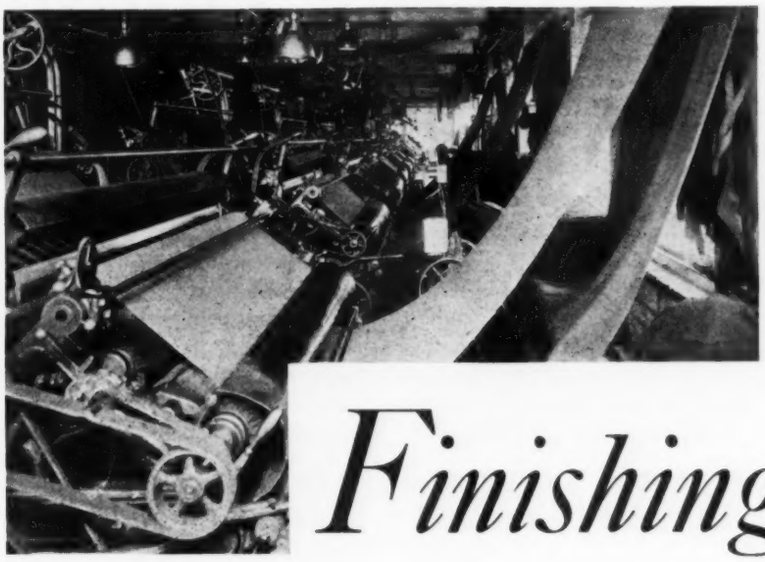
The special characteristics of rayon and the manner in which it differs from silk have been pointed out so many times and so emphatically that in numerous cases silk manufacturers have adopted more precautions for handling it than are actually necessary or desirable. Some of the prevalent mistrust of rayon is due to early experiences with it when the yarn had not attained its present quality. The situation is illustrated by a comparison of the warping methods in three mills which the writer visited within a radius of 70 miles of each other.

In one of these, rayon was being produced for the first time. The adjustments that had been made to the warping frame made it suitable for anything but rayon. Felt washers were placed on the spindles, a strip of billiard cloth was placed on top of the washers, and the bobbin was permitted to revolve on the billiard cloth. Only every other spindle was used, reducing the number of bobbins from 600 to 300. The speed of the wheel had been reduced from 11 turns per minute to 6 turns per minute. Other adjustments had been made which made this a very undesirable machine to operate. Yet this manufacturer complained that his warps were very unsatisfactory when put through the slashing machine. The extreme tension given the yarn in warping caused individual filaments to tear, and the weakened yarn was not capable of resisting the tension on the slashing machine. The outstanding peculiarity of this mill's system, however, was the fact that, irrespective of whether the yarn was 75-, 100-, or 150-denier, the tension was not changed.

A bad feature of the felt washer is not only that it causes excessive tension but that it causes also uneven tension. When a bobbin has revolved a number of times on a felt washer and a foreign substance gathers on its surface, it develops smoothness. This surface offers no friction to the bobbin and permits it to spin. This causes a jerky revolution, resulting in alternate tearing of filaments and slack ends.

In the other two plants just the opposite condition prevailed. Both had cast aside the fear of rayon, and their warping machines were operated on the same basis as silk—with a high speed of 10 revolutions per minute and no change in washers. The peculiar situation was that the warps made under these conditions were going through the sizing machine with minimum difficulty.

PREPARATORY PROCESSES ARE OF EXTREME IMPORTANCE IN



By G. L. Atkinson

Finishing Reps

TWO of the defects most frequently encountered in finishing reps are cracking and cockling of the fabric. Watering or embossing is another fault which occurs at times, although not as frequently as it appears in poplins and similar materials. Finishers differ greatly in their opinions as to the best methods to follow in handling this type of material. A procedure which the writer finds thoroughly satisfactory is outlined in the following paragraphs.

In the gray room the goods should be weighed and measured and then laid out for the preparing processes. Not more than five pieces are sewn together in one length, a cotton crabbing wrapper about 10 to 12 yd. long is attached to each end of the batch, and the goods are beamed on a light roller. It is essential that reps be crabbed in order to set the fabric thoroughly. Preferably crabbing is carried out on a two-bowl machine equipped with top-weight arrangement and steaming apparatus.

Crabbing and Steaming

It will be noticed that when the wrapper is threaded into the first bowl of the crab, there is a certain amount of slack in the wrapper. This slack is taken up by revolving the rollers in the crab bowl by hand, the crabbing liquor is brought to the boil, the steam turned off, the fabric run into the first bowl of the crab, the steam again turned on, and the batch allowed to revolve in the boiling liquor for 2 or 3 min. In passing the pieces from the first to the second bowl, the operator should make certain that the tension is just sufficient to insure the true running of the goods and that no running marks or crimps occur in the fabric. When the goods are wrapped around the crabbing roller in the second bowl of the machine, the top-weight arrangement is put in place.

After crabbing, the goods should be steamed. If steaming is omitted, it is possible for the temperature reached in dyeing to be higher than that of the setting process. As the goods in the dye tub are not held under tension, in either width or length, isolated and uncontrolled local shrinking takes place, with the result that cracking and cockling of the fabric occurs. That is, if the set of the fabric is to be permanent, the setting process must be conducted at a higher temperature than is obtained in any subsequent process.

It will also be found that goods which are steamed have a greater affinity for the dyestuff than goods of the same type which are not steamed. This enables a speeding up of the dyeing operation. Steaming also assists the finisher in obtaining a soft handle and in avoiding the undesirable thin, papery finish sometimes noticed on reps. Steaming is carried out at a pressure of 7 to 9 lb. One steaming is sufficient for this class of goods, after which they are allowed to cool.

Usually reps need only a light scour. A typical procedure is as follows: Scour 20 min. with soap and soda ash; rinse for 15 min.; scour 15 min. with soap and ammonia; rinse 40 min. with warm water; and rinse 30 min. with cold water.

Precautions in Dyeing

The major precautions in dyeing are to make certain that the goods are well opened out, to avoid prolonged boiling, and to give ample time for rinsing. After dyeing, the fabrics are extracted and dried, care being taken in drying to avoid baking. Goods which have a gray width of 56 to 57 in. should be dried to about 55½ in. to give a finished width of 54 in. The pieces are now sheared back and face. First the back is given three runs on a hollow or spring-bed machine and the face one run. Then the face is given one or more runs on a solid-bed machine to insure a clean cut.

Perching, damping, and decatizing follow the shearing operation. If the goods are to have a soft, full finish, they must be run off the decatizing machine at steam heat. The pieces are now run over the steaming and brushing machine until all laying marks and creases have disappeared. Although many mills give reps a light rotary pressing, the writer prefers merely to run in warm press papers—on the back of the fabric only—and allow the goods to lie over night in piles of ten to twelve pieces. This procedure prevents the glazed, papery finish due to excessive pressing.

Roller-Bearing Spindles

SPARTAN MILLS CONDUCT TESTS ON VALUE OF NEW SPINNING INSTALLATION

By Francis A. Westbrook, M.E.

WHEN Spartan Mills, Spartanburg, S. C., made their recent installation of 91 long-draft frames equipped with roller-bearing spindles, they did so on the strength of tests made on small experimental installations in various mills; but being naturally interested to know just what these spindles were doing for them, they have now conducted tests of their own. These tests have shown the following results: (1) a 20% saving in power per pound of yarn, (2) an increase in the average production per spindle of about 1.5%, (3) an increase in the breaking strength of the yarn of about 3 to 6%, (4) operation at a spindle speed well over 10,000 r.p.m. on one lubrication per 3,500 running hours, and (5) a decrease in the number of ends down.

These tests were conducted by Spartan Mills engineers over a period of five weeks under actual mill conditions after the new frames had been well broken in. They had been run 5,000 hours. The power and production measurements were made on frames scattered throughout the mill, none of which had been given any preliminary grooming. Four frames had been equipped with new precision plain-bearing spindles and well broken in.

Both types of spindle had blades manufactured of chrome-alloy steel hardened throughout and tempered to spring elasticity. The whorl cone and the upper part of the blade were identical on both spindles and carried the same bobbins. The SKF roller-bearing spindles had a $1\frac{1}{8}$-in. whorl against the $1\frac{1}{16}$-in. whorl of the plain-bearing McMullan spindles. This fact made it difficult to run both frames at the same spindle and front-roll speeds, but the speeds were brought together as closely as possible by using motor pulleys of different diameters. Other specifications are given in Table I.

In order to gain a clear picture of the efficiency of the two spindle types, it was decided to establish an average over a period of five weeks of the following values:

1. *Power consumption in relationship to amount of yarn produced (kilowatt-hours per pound of yarn).* This value naturally depends not only upon the power consumption of all parts of the spinning frame, but also upon the amount of cotton which becomes waste during the spinning operation and upon the time spindles are running empty. The power consumed per pound of yarn also depends somewhat on the skill of the operator who attends the frames, and therefore the same operators were employed for servicing both types of spindles.

2. *Pounds of yarn spun during one hour of spinning time.* This value is influenced by the number of ends down, and by the number of spindles running empty or standing. The cause of ends down may be flying lint, faulty roving, slippage between whorl and tape, faulty rings, faulty travelers, etc. Spindles might be standing because of broken tapes or running empty because of roving running out. However, tests conducted over a period of time will show comparative results.

3. *Production per 10,000 revolutions of the front rolls.* This value depends in the first place upon the number of ends down and in the second upon the skill or diligence of the operator. For this reason, during the test the same operator tended the frames equipped with plain-bearing spindles and those with the roller-bearing spindles. The time element does not influence this result, provided the frames are geared to produce yarn of the same count and twist. Therefore, if any one of the frames produces less pounds of yarn, idle spindle time only is responsible. This value, therefore, furnished a very good comparison basis for the running qualities of spindles, travelers, and rings in relation to ends down.

4. *A comparison of the spindle speed calculated theoretically and the spindle speed measured actually.* This comparison gives an accurate picture of the amount of slippage which takes place between the whorl and the

TABLE I—Specifications of Test Frames

	Plain-Bearing-Spindle Frame	Roller-Bearing-Spindle Frame
Maker	Saco-Lowell Shops	Saco-Lowell Shops
Running time	Approximately 4,800 hours	Approximately 5,700 hours
Number of spindles per frame	276	276
Drafting system	Saco-Lowell long draft	Saco-Lowell long draft
Motor	Allis-Chalmers 10 hp.	Allis-Chalmers 10 hp.
Motor drive	Texrope conical 4 belts	Texrope conical 4 belts
Type of drive	Tape	Tape
Cylinder diameter	8 in.	8 in.
Cylinder speed	1,525 r.p.m.	1,560 r.p.m.
Cylinder bearings	Ball Bearings	Ball Bearings
Type of spindle	Saco-Lowell precision plain-bearing McMullan	Saco-Lowell SKF roller-bearing
Whorl diameter	$1\frac{1}{16}$ in.	$1\frac{1}{8}$ in.
Spindle speed	10,789	10,699 (average)
Yarn number to be spun	30s warp	30s warp
Latest oiling of spindles	Oiled every week and in between when necessary	3 months previously
Traverse	$7\frac{1}{4}$ in.	$7\frac{1}{4}$ in.

TABLE II—Ends Down and Their Causes

	7–8 1–2	8–9 2–3	9–10 3–4	10–11 4–5	11–12 5–6	Total
Plain-Bearing Spindle, 49.97 hours running time						
Roving	3	5	4	1	4	17
Dirt	2	..	1	..	1	4
Flying Lint	43	61	48	53	33	238
Lint in Long Draft	11	23	30	51	16	131
Bad Top Rolls	..	..	..	..	..	..
Bobbin	..	..	..	..	..	..
Yarn on Spindle	..	..	..	..	..	..
Yarn in Bobbin Bore	..	..	..	..	..	..
Unknown	87	62	66	80	43	338
Spindle*	53	..	..	..	..	..
Roller-Bearing Spindle, 49.75 hours spinning time						728
Roving	7	3	1	7	..	18
Dirt	5	3	5	4	5	22
Flying Lint	41	48	42	42	8	181
Lint in Long Draft	11	25	12	18	4	70
Bad Top Rolls	..	4	4	6	..	14
Bobbin	1	..	..	..	..	1
Yarn on Spindle	5	10	7	2	..	24
Yarn in Bobbin Bore	4	3	2	1	0	10
Unknown	71	47	37	44	19	218
Spindle*	40.7	..	..	..	..	..
						558

*Number of ends down per 1,000 spindles per 1 hour.

tape and hence a comparison of the specific frictions in the spindle bearings.

5. *Number of ends down and their causes over a period of 55 hours of spinning time.* This characteristic, it is realized, is of more informative value concerning the quality of a drafting system, roving, etc. It may also, however, be of assistance in determining the qualities of a spindle type if it is assumed that all unknown causes for ends down are primarily faulty spindle operation, such as excessive vibration, loss of speed because of band slippage, or inadequate lubrication.

6. *Comparison of the breaking strengths of the yarn.* Breaking strength depends to a great extent upon the quality of cotton used, the twist, and the amount of draft. Care was taken during the tests that these three items were the same, or as nearly as possible, on all frames.

Results of Tests

1. *Power consumption in relation to amount of yarn produced.* The power diagram, Fig. 1, shows the average power consumption curves of 41 doffings. The speeds of front roll, cylinder, and spindle were taken once every hour and have been averaged. The amount of yarn spun during each doffing was carefully checked by taking first the weight of the empty bobbins before the doffing and then the weight of the full ones after the doffing. Power readings were recorded every 15 min.

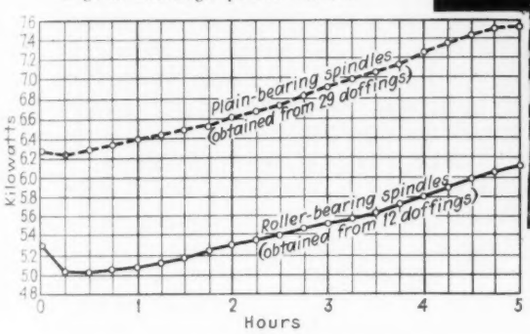
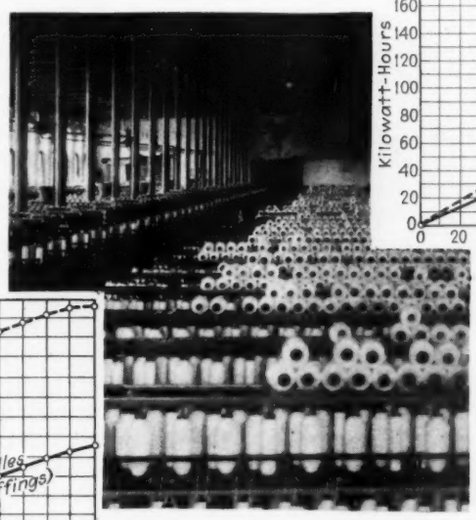


Fig. 1. Average power curves



Glimpse of Spartan spinning room

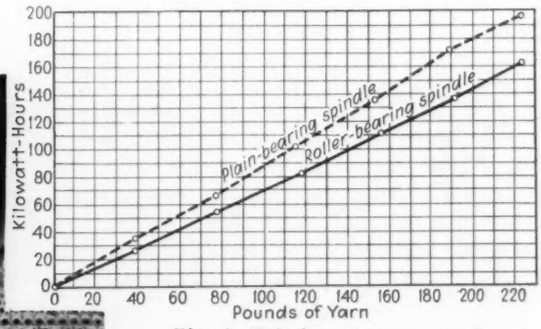


Fig. 2. Relation of power consumption to production

The analysis of the power-consumption curves gives:

Average figures per 1 doffing of 5 hr. for plain-bearing spindle:

Power consumption	6.82	kw.-hr.
Production	38.21	lb.
Power per 1 lb. of yarn	.893	kw.-hr./1 lb. of yarn

Average figures per 1 doffing of 5 hr. for roller-bearing spindle:

Power consumption	5.46	kw.-hr.
Production	38.957	lb.
Power per 1 lb. of yarn	.701	kw.-hr./1 lb. of yarn

A comparison gives a difference of .893-.701 = .192 kw.-hr., or a saving of 21.5% in favor of the roller-bearing spindle.

Fig. 2 shows a comparison of the power consumption and the production over a period of one week with a running time of 54.17 hr. This chart was obtained from 276-spindle frames and spindle speeds of approximately 10,750 r.p.m. After 54.17 hr. of spinning time the frame equipped with plain-bearing spindles had consumed 199.45 kw.-hr. of energy and produced 221.2 lb. of yarn, whereas the frame with roller-bearing spindles had consumed 160.31 kw.-hr. and produced 225.6 lb. of yarn. The saving of the roller-bearing spindle amounted, therefore, to 21.3%.

2. *Pounds of yarn during one hour of spinning time.* The average production of 276 plain-bearing spindles per one doffing period of 5 hr. was established over a period of five weeks by weighing the yarn of two doffings per type of spindle and per day. The plain-bearing frames were spinning with an average spindle speed of 10,780 r.p.m. and an average front-roll speed of 141 r.p.m. The average production was found to be 38.21 lb. of yarn, as against 39.33 lb. of yarn on the roller-bearing frames running at a spindle speed of 10,701 and a front-roll speed of 143 r.p.m. The average production figures of the plain-bearing frames were obtained from four frames, whereas for the value of the production of the roller-bearing spindles 45 frames were under observation. The weight of yarn spun during one hour by one plain-bearing spindle was therefore .0277 lb.; and by one roller-bearing spindle, .0285 lb.

These figures, however, are not entirely correct, because the front-roll speed of the roller-bearing frame is 2 r.p.m. more than that of the plain-bearing frame. Taking into consideration that the theoretical weight of the aditional yarn delivered to the roller-bearing spindle amounts to .00031 lb. per 1 hour, the final comparison is therefore .02819 lb., for the roller-bearing spindle as against .02771 lb. for the plain-bearing, or a difference of .00048 (1.74%).

3. *Production per 10,000 revolutions of the front rolls.* On a plain-bearing frame at a front-roll speed of 141 r.p.m., 10,000 revolutions of the front rolls take place during 10,000 ÷ 141, or 70.92 min. According to the average production figures, the weight of yarn produced during 70.92 minutes was .0327414 lb. per spindle or 9.037 lb. per 276-spindle frame.

On a roller-bearing frame at a front-roll speed of 143 r.p.m., 10,000 revolutions take place during 10,000 ÷ 143, or 69.93 min. The weight of yarn produced during 69.93 min. was .0332168 lb. per spindle or 9.168 lb. per 276-spindle frame.

Production per 10,000 revolutions of the front rolls was therefore higher in the case of roller-bearing spindles by 9.168-9.037, or 0.131 lb. (1.43%).

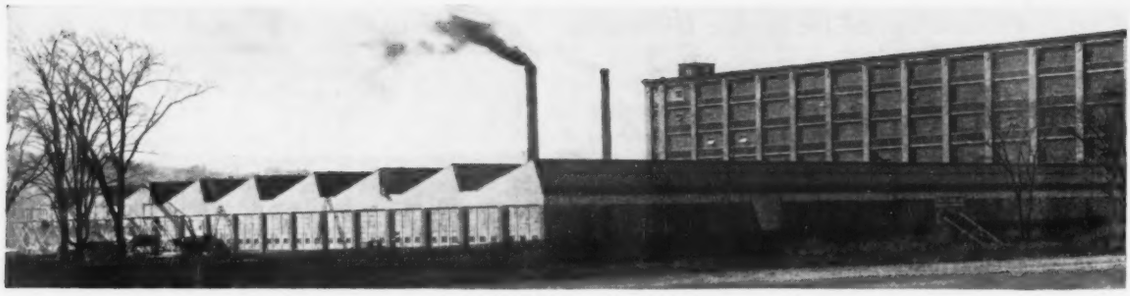
4. *Comparison of calculated and actual spindle speeds.* Average cylinder speed of the plain-bearing frames was found to be 1,525 r.p.m. Therefore, theoretical spindle speed was 11,483 r.p.m. Inasmuch as the actual speed was found to be 10,789 r.p.m., the slip between tapes and whorls caused a loss of 694 r.p.m., or approximately 6%.

The average cylinder speed of the roller-bearing frames was found to be 1,560 r.p.m. Therefore the theoretical spindle speed was 11,093 r.p.m. As the actual average speed was found to be 10,701 r.p.m., the loss caused by slip of the tapes amounted in this case to 392 r.p.m., or 3.5%, which is 41.7% less.

5. *Ends down and causes over 55 hr. of spinning time.* Table II shows the number of ends down on a one-week test and their causes so far as these causes could be traced with certainty. I shall leave it to the reader to draw his own conclusions from the table. It should be pointed out, however, that the roller-bearing spindles showed 23.2% less ends down.

6. *Comparison of the breaking strength of the yarn.* The yarn number spun and the breaking strength of the yarn produced by both types of spindles were taken twice every day. In each case figures represent the average of 29 doffings. For plain-bearing spindles the average yarn number was found to be 30.04s; and the average strength, 68.8 lb. For roller-bearing spindles the count was likewise 30.04s, but the strength was 71.4 lb., or 2.6 lb. higher (3.6%).

This difference is due to less slip of the tapes on the whorls of the roller-bearing spindle in the first place, and to the fact that the spindle speed of 10,800 r.p.m. of the plain-bearing spindles is too high for the lubrication system of this spindle. The plain-bearing spindles had to be relubricated after less than one week's running time, and it may be safely assumed that a number of single spindles did not reach their full speed due to lack of lubrication, thus causing soft-twisted spots in the yarn produced.



NOW IS THE TIME FOR TEXTILE MILLS TO START

Spring Cleaning

By H. H. Iler

AT THIS season of the year the plant maintenance department will do well to follow the example of the American housewife and start the spring cleaning. An inspection will reveal many things about the plant that have suffered from the ravages of winter weather and should be looked after before the blistering midsummer heat makes outdoor work uncomfortable.

Exposed window casings, sash, and sills suffer from the deterioration of paint, putty, etc. Outer surfaces of doors and the door casings may have lost some of their protective coating of paint and may have also been damaged by slamming or other abuse. It is advisable at this time to look over the hardware fittings; replace any broken or worn latches, bolts, knobs, handles, etc.; and make any necessary repairs to the door bodies.

Spring inspection of fences, hydrant houses and hydrants, post indicator valves, tanks and towers, exposed pipe lines, building eaves, roofs, louvres, and ventilators will often bring to light the need for repainting, and making minor repairs which could not be made conveniently in the winter. It is well also to remove underfloor ventilator closures to reestablish the free circulation of fresh air. This will help to prevent deterioration of substructure members by rot, which progresses rapidly in stagnant air.

Revolving roof ventilators may have rusted mechanisms which interfere with their free movement. These should be cleaned and oiled to assure good operation during the summer months when ventilation is so important. Monitor windows which have remained closed all winter, will need to have their operating mechanism oiled, limbered up, and possibly readjusted to meet the more frequent operating demands of the hot season. Replacement of window-sash cords and oiling of cord pulleys may be necessary.

Of course, winter valves on the fire-protection system must be opened and sealed open after all danger of freezing is past, and proper report made of their opening to the insurance company.

March winds are likely to bring additional dry leaves and other light debris to lodge on roofs and in gutters and drain conductors. The spring cleaning will, therefore, include the removal of these accumulations to facilitate proper drainage of roof surface later; otherwise the sudden heavy downpours of summer may cause overflow and possible damage. In a rainstorm lasting less than half an hour, the writer has seen such stoppages cause overflow through monitor windows on a parapeted roof, thus wetting motors on air compressors and resulting in almost complete shutdown of the plant.

Wooden platforms should be inspected for loose floor boards and rotted substructure; concrete platforms may need filling in of holes which have resulted from severe freezes and thaws frequently repeated during the winter.

The yard around plant may show ruts and gullies which require filling in and leveling off; and there may be side gutters and drain pipes which need opening. It is quite important to get this done with the coming of open weather, because of the possible inconvenience and damage of insufficient drainage facilities to take care of the run-off of sudden, heavy showers of summer.

Tractors, road working machines, mowers, rakes, trucks, and tools necessary for the upkeep of roads, lawns, shrubbery, etc., should be put into condition for the use they will experience as the season progresses. Outside pipe lines which have been out of use during the winter to avoid freeze breaks should be reconnected. Preparation for the growing of annuals is called for in early spring; and flower beds around the mill should be forked, spaded, and fertilized.

Village painting is also best done in spring before the air becomes charged with dust and flying insects. Repair of fireplaces and flues in mill houses should also be carried out at this season.

The draining and flushing of radiators and coils and the refilling of heating boilers result in the introduction of oxygen and carbon dioxide which are present in all water supplies. Therefore heating engineers do not recommend this procedure, unless inside surfaces are thoroughly dried to prevent attack of the metal by these gases. Systems may be opened at their highest and lowest points, flushed, and then left open at these points to encourage drying by air drafts; but they should again be flushed before they are reconnected for next season's use, as some incrustation and rust will become detached during the drying-out period.

Outdoor electric transmission and distribution lines will need going over to find rotted and weakened poles, slack guys, sagging conductors, broken insulators, and loose transformer primary fuses. The oil level in transformers is best brought up to "full" at this time to guard against the evaporative effect of summer temperatures.

Women's Coatings

GROUP OF INTERESTING WOOLEN CONSTRUCTIONS

By George R. Stevens

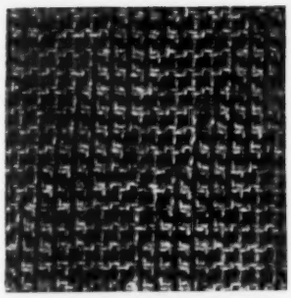


Fig. 1. Women's spring fancy coating

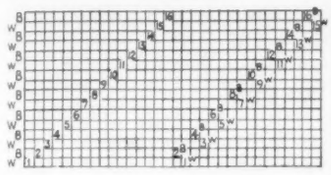


Fig. 2. Drawing-in draft for Fig. 1

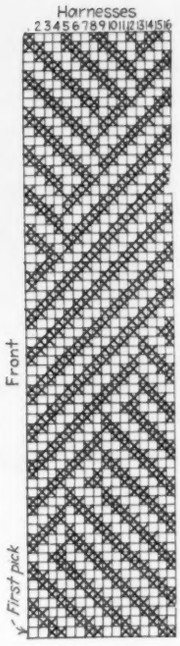
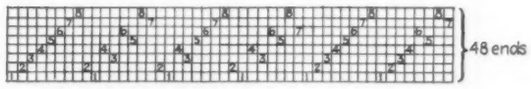


Fig. 3. (at right) Chain draft for Fig. 1



IN the articles on current woolen and worsted fabrics which I write from time to time for TEXTILE WORLD, I usually include at least a few designs which can be woven on automatic looms. A women's spring fancy coating of such design is illustrated at Fig. 1, with the drawing-in draft at Fig. 2 and the chain draft at Fig. 3. The yarns shown are actually 4-run in the warp and 4½-run in the filling; but with the idea of bringing out the design more prominently, I recommend 3¼-run for both warp and filling.

Other details in the proposed layout are as follows: 2,700 ends plus 48 for listing, reed 10/4, 68.7 in. wide over all, 40 picks per inch at loom. A suitable stock might be 40 per cent good 3/8 wool and 60 per cent garnetted white waste. The warp pattern is 1 white and 1 black; and the filling pattern, 2 white and 2 black.

I have recommended a different yarn count from the original. In this connection I should like to point out that fabric counts are proportional to yarn diameters. Therefore when we decide to change a construction from one yarn count to another we can use the ratio of yarn diameters as a simple basis.

For example, suppose we wish to change the yarn count in the preceding example from 3¼-run to 2½-run. On the Ashenhurst basis, the reciprocal of the yarn diameter for 3¼-run is 72.1 multipled by a constant; and for 2½-run, 63.2 multiplied by the same constant. Then the ends would be (63.2 ÷ 72.1) x 2,748, or 2,400; and the picks would be (63.2 ÷ 72.1) x 40, or 35. It occurs to me that costs, including spinning costs, may be somewhat proportional to yarn diameters, and I should be much interested to learn whether any reader has investigated this possibility.

Another design for women's spring coatings which is new and very suitable for manufacture on automatic looms is shown in chain-draft form at Fig. 4, with the drawing-in draft at Fig. 5 and the woven effect at Fig. 6. The warp pattern is 1 x 1; and the filling pattern, 2 x 2. While the effect is made up with black and white spots for ground work, it is more effective than Fig. 1, particularly if made bold by the use of heavier yarns. I suggest 2½-run for warp and filling, 66 in. wide in reed, 2,400 ends over all, and 33 picks.

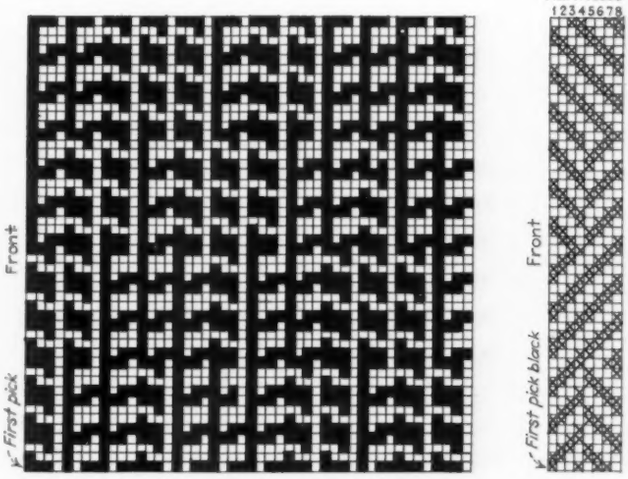


Fig. 4. (at right) Chain draft for Fig. 6
Fig. 5. (top) Drawing-in draft for Fig. 6
Fig. 6. (below) Woven effect for women's spring coating

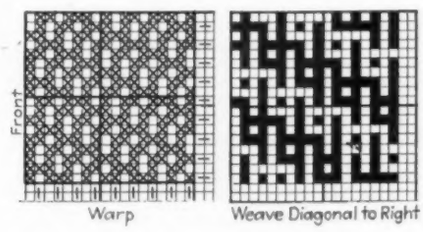


Fig. 7. (left) Novelty weave for women's coating
Fig. 8. (right) Woven effect of Fig. 7

An original novelty design for women's 25/26-oz. coating is given at Fig. 7, with the woven effect at Fig. 8. The weave is a modified type of crepe based on a nine-harness diagonal twill. It is shown here extended to eighteen harnesses in order that the complete woven effect may be seen, since the pattern is 1 x 1. The reader will note that in the woven effect of the design the black threads occasionally line up warp-wise for nine

picks, as do also the white threads, while filling-wise they do not extend more than five warp threads, thus giving a balanced design with the longest lines always in the direction of the warp. The general effect is a well-balanced and attractive network.

A suitable yarn size for this fabric would be 1½-run, and the attractiveness would be enhanced by the use of a stock blend embodying 30 to 35 per cent of kid mohair or rabbit hair in both warp and filling. Some fine but short and cheap stock could be included to keep the cost down, the proportions of such stock and staple wool depending on the judgment of the man in charge. Certain color blends would be effective, such as one thread of medium-blue stock containing 20 to 25 per cent of light purple to sharpen the tone with one thread of clear white, or one thread of dark reddish (iron rust) shade with one thread of light nile green.

Here again the fabric count can be derived from the first construction by means of the yarn diameters. The result is the following layout: 1,880 ends including listing, not over 66 to 67 in. in reed inside of listing, and 27 picks per inch at loom with, say, a 24 gear.

This fabric should be given a light soaping at fulling and held nearly to loom length. The finishing overseer should watch it carefully in fulling and washing to avoid shrinking, which is likely to occur rapidly—in width particularly. A light brushing on a double-acting napper might add to the appearance by softening the effect.

PREVENTING THE ACCUMULATION OF

Odd Lots of Half-Hose

By Frank S. Webster

WHAT is the best plan for reducing the amount of odds accumulating in the finishing and shipping departments of mills manufacturing men's fancy half-hose? This question has been raised often, and the writer would like to submit in answer a plan which has worked very satisfactorily in plants ranging in production from 3,000 to 30,000 doz. per week.

Let it be understood in the beginning that this article does not deal with the matter of excess stock accumulating in the finishing department due to goods being manufactured out of line and out of proportion to orders, but deals with unnecessary odds piling up in this department for other reasons. The following plan works equally well on a production of 500 to 6,000 doz. or more per day whether the goods are ingrain, dip-dyed, or both.

The first source of odds accumulating in the finishing department is "reboards" and "redyes." These are thrown out by the inspector-pairers and marked with the correct size, style, color, etc. They are returned once daily to the dyehouse, and distributed there in small bins built in for this purpose. Thus all styles, sizes, and colors are kept separate until ready to be redyed and finished. When a dyeing is to be made of a certain style, size, and color, the man tending the dye machines is required to look over his stock in these bins and determine whether he has on hand any of these particular goods to be redyed and refinished. If so, he adds these goods to the dyeing about 10 min. before his dyebath is exhausted. The result is that these redyes usually come out properly dyed and are ready to be refinished along with the regular lot.

In addition to the odds above mentioned, the inspector-pairers, after finishing a lot, invariably find an accumulation of odd "firsts" and "seconds" that will not "mate." These are piled neatly on boards, and once each day defective pairs found by the folders and boxers are collected and combined with these goods. Then semi-weekly—or oftener, if necessary—a girl specially trained for this work goes through the whole lot; separates, inspects, and pairs these goods; and places each grade, style, size, and color in the proper stock racks. "Mender's" work, after it has been completed, is handled in the same manner.

The girls filling these positions must be those which are the best and most efficient in the whole finishing department, as good judgment, perfect eyesight, and a world of patience are very necessary if the plan is to be successful.

In the shipment of "seconds" and "thirds," it is almost always possible to include in the same case two or more styles of the same price and construction, thereby cutting down the finished stock. In most cases this practice is highly desirable from the customer's viewpoint, as it gives him a wider range of patterns and colors to the case.

We believe that if operatives are carefully selected and properly trained and the above plan followed, the result will be a minimum of odds accumulated and a clean, orderly finishing department. There will be a place for everything and everything will be in its place—aims which every well-regulated hosiery mill strives to attain.

A place for everything

Sulphur Dyes

APPLICATION BY HYDROSULPHITE REDUCTION METHOD TO COTTONS AND RAYONS

By
George I. Putnam

IN VIEW of the fact that the hydrosulphite reduction method of applying sulphur colors has distinct advantages over the usual procedure, it is surprising that many dyers have neglected this process. The hydrosulphite reduction method is particularly advantageous in increasing the fastness properties of certain blues, blacks, and greens. With most other shades it is not as satisfactory; and it is seldom, if ever, employed with yellows.

This method can be employed on yarns or fabrics of either cotton or rayon and with any type of equipment ordinarily used for dyeing sulphur colors. Not all sulphur dyestuffs can be applied by the hydrosulphite reduction method; and therefore the dyer must take care to select suitable colors.

Typical Procedure

A typical procedure for dyeing 500 lb. of cotton fabrics in a reel machine is as follows: To dye a Ching Blue shade on this amount of material, approximately 30 lb. of Sulphur Brilliant Blue, 30 lb. of soda ash, and 8 lb. of sodium hydrosulphite will be required. The dye and half of the alkali are put into a half barrel of water, the temperature is raised to 160 to 170 deg. F., and half of the hydrosulphite is slowly sprinkled in to reduce the color, stirring constantly. Reduction is complete when the mixture has a distinct yellowish color. The other half of the alkali and the rest of the hydrosulphite are now added to the bath in the order named. For best results the cloth should be given a short boil to insure thorough wetting out. After the goods are wet out, the reduced dyestuff is added and the temperature brought to 160 deg. F. About 150 lb. of glauber salt is added after 20 min. and the dyeing continued for 20 min. longer.

Care must be taken during dyeing that oxidation does not take place. At the first indication of oxidation, shown by the color assuming its finished shade, an addition of hydrosulphite is made at once.

When dyeing is complete, water is turned on, and the goods are washed in an overflowing bath until partial oxidation of the dye has taken place. Then, without stopping the motion of the goods, the water is shut off, the bath dropped to half its original volume, additional fresh water run in, and from ½ to 1% of sodium perborate added. The temperature is raised to 120 deg. F., and the material run for about 15 to 20 min., or until oxidation is complete. The goods are given a final rinse, softener is applied, and the fabrics are ready to be extracted and dried.

Tricks of the Trade

There are certain "tricks of the trade" which must be known if the hydrosulphite reduction method is to give best results. The chief of these are as follows:

1. In reducing the dyestuff sufficient quantity of water must be used; otherwise the dyestuff will precipitate. It is advisable to use a half barrel of water for 30 lb. of dyestuff and 15 lb. of alkali.

2. Any additional hydrosulphite is sprinkled into the dyebath in about 3-lb. lots. This quantity is usually sufficient to hold the bath for some time.

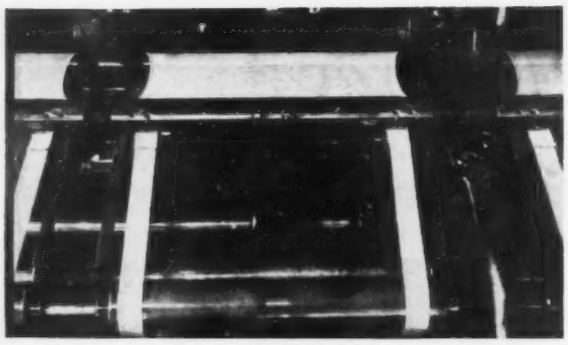
3. In prolonged dyeing—when, for instance, an addition of dye is necessary—sufficient alkali should be added to prevent the bath from becoming acid. Two parts of alkali will take care of one part of hydrosulphite. For example, if after 40 min. of dyeing the shade requires an addition, about 10 lb. of alkali should be added. This amount of alkali will take care of 5 lb. of hydrosulphite.

4. Additions of dyestuff are reduced at 160 deg. F. in the same manner as is the original. If the quantity of dyestuff does not exceed 4 lb., the reduction can be made in a 12-qt. pail. For 4 lb. of dyestuff there will be required about 3 lb. of soda ash and 1 lb. of hydrosulphite.

5. Too much sodium perborate tends to lighten the shade. Hence ½ of 1% is sufficient. Hydrogen peroxide (100 vol.) may be used instead of sodium perborate; 1 pint is enough for the dyeing described above.

6. Shades which are too heavy may be lightened by a soaping at 160 deg. F.

Finally it should be noted that certain direct yellows (notably Chloramine Yellow—C.I. No. 814) can be used for shading. Thus, in producing a Rustic Green shade, 4½ lb. of Chloramine Yellow is first put in the machine; the goods are run for 5 to 10 min.; about 16 lb. of a suitable greenish blue sulphur color (reduced with 30 lb. of soda ash and 8 lb. hydrosulphite) is added; and dyeing is continued in the usual manner.



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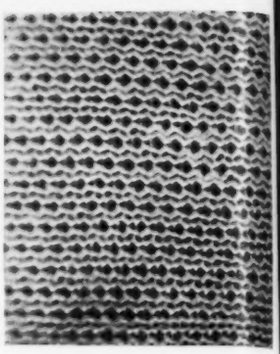
By Paul H. Bubeck
Superintendent, Norristown Plant,
Ajax Hosiery Mills



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Pin Stitches . . .

THIS FULL-FASHIONED DEFECT IS CAUSED BY MAL-ADJUSTMENT OF

A DEFECT frequently encountered in the manufacture of full-fashioned hosiery is the formation of so-called "pin stitches." These pin stitches, which are quite often called "strawberry" or "diamond stitches," are prevalent more often in the welt than in any other section of the stocking. They form a lacy design throughout small sections of the fabric and are caused by an unbalanced loop formation which gives a distorted stitch. At times they are so regular in appearance that they make fascinating symmetrical lacy effects, such as are shown in Fig. 1. Mal-adjustment of the machine, one of the two principal causes of pin stitches, will be discussed in the following paragraphs; improper conditioning of silk, another common cause of this defect, will be taken up in another article to appear in a later issue.

Tht first step to be taken in correcting possible mal-adjustments is to make certain that the needles are lined up evenly from one end of the head to the other. The knitter should be instructed to keep the same space between the points of the beards and the stems of the needles according to a set specification. On plain work this space should be 0.014 in., while for lace or mesh work, 0.018 in. is the better practice.

Verge plates should be gone over periodically, regardless of the condition of the fabric coming from the machine. Many times sinker indentations which would cause an unbalanced stitch can be found along the verge plates. A verge plate should never be adjusted without the use of a gage, as this would cause an unevenness throughout the machine. In other words, it would be liable to cause one end of the section to be tighter or looser than the other. On the tight end of the stocking one would then have pin stitches, and on the loose end one would have sleaze. All lost motion should be taken up between the sinkers and the verge plates, leaving sufficient space (0.005 in.) so that the sinkers do not bind against the verge plates.

A gage should always be used when one is adjusting the jack head so that the same space exists between the jack and the slur-cock on all heads. If the space varies between slur-cocks and jacks, it will cause whipping or lagging of sinkers. Whipping of sinkers is bad; it not only causes flying sinkers, but also breaks the tips.

Where machines are equipped with spring jacks, they should be periodically checked over for proper pressure. Where there are no spring jacks, a No. 2 cup grease should be used on the jacks from time to time to prevent them from becoming too loose and causing too much freedom of sinkers. The sinker heads should be oiled at least once a week with first-quality needle oil to prevent lint, oil, and moisture from gumming together and making the sinkers lazy.

The foregoing precautions are important, but not more so that the gaging of the needle-bar. To adjust the needle-bar too low would have a tendency to drag the stitches down along the sinkers as the catch-bar is being retarded, thus distorting the stitches before entering the knocking-over function. This adjustment of the needle-bar has to be done carefully, because raising the bar too high would have a tendency to cause sleaze. Thus, the raising or lowering of a needle-bar without a gage would affect the coordination between the needles and the narrowing points, and an additional setting of the narrowing machine would then be necessary.

As a matter of fact, this adjustment of the needle-bar should not be attempted until other adjustments have failed. The tension on the stitch should be adjusted by setting the knocking-over heads according to gage. The knocking-over trucks should never be touched without the use of a gage, and they should never be moved once they are adjusted. If the adjustment has to be made, it should be made by an expert and not by the knitter.

When all parts which are directly in contact with the silk have been checked, the take-up straps, take-up rollers, number of weights used, condition of the welt-bars, humidifying systems, and moistening devices should be considered.

Various types of take-up straps are in use at present, and it would be difficult to determine which type is the most effective. Some knitters believe that the old-type elastic strap is best; others prefer the strap with springs attached and no elasticity in the strap fabric; still others prefer the plain straps with the spring rollers which

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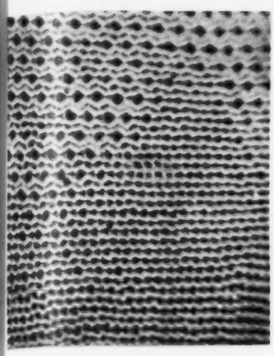
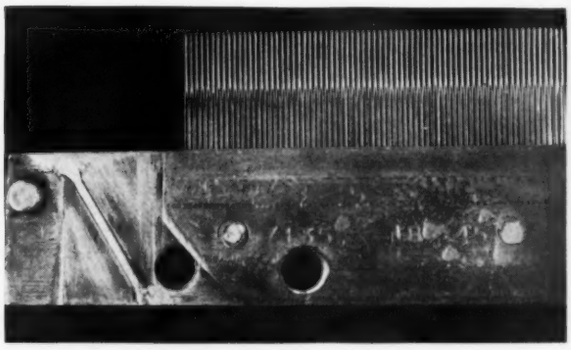


Fig. 1. (center) Pin stitches due to unbalanced loop formation.

Fig. 2. (left) Non-elastic take-up strap and spring roller; note use of two straps on each section.

Fig. 3. (right) Double-strap hook-up shown in Fig. 2 gives perfect alignment of welt-bars.

Fig. 4. (below) Piece of tool steel soldered in end of welt-bar to prevent sticking of the bar.



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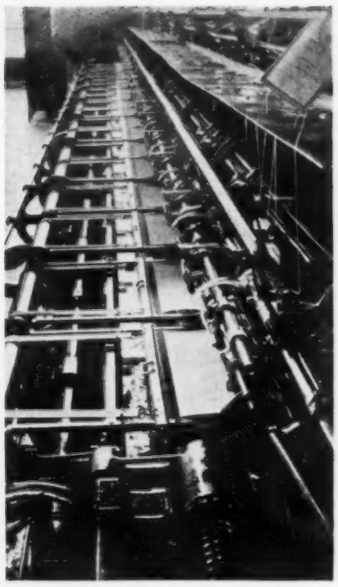

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have been adopted by at least one manufacturer of full-fashioned hosiery machines. Painstaking experiments and study have proved that in our case the plain-strap and spring-roller type illustrated in Fig. 2 is the most practical. It must be borne in mind, however, that all of the elements have to be adjusted properly before this plain strap and spring roller type will be satisfactory.

The spring resistance in all the rollers should be practically the same, and the straps should be uniform in length throughout the machine. Although production is slightly retarded, it is advisable to use two straps for each section for the entire length of the stocking, including the welt. This will cause a more balanced knitting and will have less tendency to unbalance the loop formation. Holes can be drilled through the welt bar so that the straps will run parallel with the welt-bar bridge in order to give the best results and prevent a drag on one side or the other.

Oscillating Take-Up

Just recently the oscillating take-up motion has become popular. It is indeed a valuable asset to any machine, inasmuch as it functions simultaneously with and in the direction taken by the needle-bar in its forward and backward motion. In a sense, this acts as a snubber, and does not cause a sharp yank or pull on the stitch while it is being knocked over, thus allowing the stitch to come over in a natural loop and resulting in an evenness that is not marred by distortion. Note, in Fig. 3, the even position of each welt-bar using the oscillating motion, double-strap hook-up, non-elastic strap, and spring rollers.

It is our experience that the old-style elastic take-up strap is not permanently efficient, because of its rubber content which naturally deteriorates with age and contact with water, oil, or perspiration. This deterioration tends to vary the elasticity in the strap, making it impossible for the strap tension on all sections to be uniform. If, however, the elastic straps are used, they should be used double—not only after the welt, but also in the welt. This is due to the fact that when a single strap is used in the welt and a double strap after the welt, the strap used in the welt does double duty and the other causes an uneven pull after the welt has been turned and both straps come into play. In order to prevent this, three straps could be used. However, the strap in the middle would tend to stretch the center loops and therefore would not be entirely satisfactory.

The number of weights used for take-up purposes must be carefully analyzed and their use governed according to the size of the thread and the construction of the knitted fabric. Knitting of loose silk fabric and carrying of too much weight will undoubtedly cause pin stitches. Failure to carry sufficient weight on any silk fabric will cause load-ups and sleaze. There is, however, a happy medium; but this can be found only after a great deal of study on each individual machine. Since there is a variation in the make-up of each machine, each unit is a study in itself and should be judged accordingly.

Precautions should be taken against too much oil on the welt-bar bridge, as this will tend to give excessive rebound to the welt-bar, particularly on high-speed machines. The constant weight of the welt-bar on the welt-bar bridge will sooner or later have a tendency to wear a groove on the under side of the welt-bar. This will cause a flat surface, which, when it comes in contact with the bridge, forms a vacuum and gives the bar a tendency to stick to the welt-bar bridge. The binding on the bridge sometimes causes the bar to hesitate in its travel long enough to create sleaze in the stocking. Sometimes only one side of the bar sticks and the other side slides freely, thus causing sleaze on one end and pin stitches on the other. In Fig. 4 is illustrated a method which can be employed to eliminate this sticking, particularly after a groove has been worn in the welt-bar. It will be noticed that a groove is cut in the welt-bar and a piece of tool steel inserted and soldered to hold it fast. This allows the tool steel to extend slightly above the level of the bar surface.

Finally, it should be emphasized that due to the fact that there are so many parts of a full-fashioned machine which can be affected by hit-or-miss methods, the adjustment of the machine should never be attempted without the use of gages.

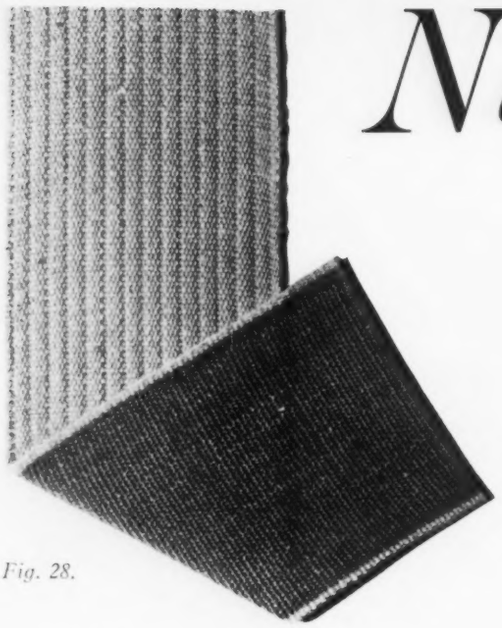


Fig. 28.

Narrow Fabrics

DESIGNING FOR HOLLOW CORDS, BINDER WARPS, AND STUFFERS

By Edwin J. Gibbons

OTHER USEFUL articles by Mr. Gibbons on the design and construction of narrow fabrics appeared Nov. 16 and Dec. 28, 1929; Jan. 25, March 1, April 5 and 12, June 21, Aug. 2 and 30, and Nov. 5, 1930; Feb. 14, May 9 and 16, Aug. 22, and Oct. 31, 1931; Jan. 23 and May 14, 1932; and March, 1933. Mr. Gibbons reserves all rights.

HOLLOW-CORD fabrics are simple tubular fabrics in which occasional ends from one system of warp are caused to interlace in such a manner as to stitch together the upper and lower fabrics. A simple method of accomplishing this is to employ the double plain weave for the face and back of the material and have the stitching ends interlace in 2/2 order, the result being hollow cords running lengthwise of the material.

Fig. 27 shows a design for a hollow-cord weave. Face and back interlace in double plain-weave order and the stitching is effected by causing occasional face ends to interlace in 2/2 order. The stitching ends are represented by crosses. This class of interlacing is often employed also as a ground weave for name webbings.

Fig. 28 illustrates a hollow-cord fabric with contrasting colors in face and back. Note the pronounced rib effect.

Use of Binder Warp

Another great class of double-cloth narrow fabrics is that in which the face and back are stitched together by a special warp known as a "binder" warp. The ends of this warp are raised over one or more face picks and lowered under one or more back picks and may be made to draw the face and back fabrics very tightly together or allow the material to remain soft and spongy, depending upon the amount of tension that is placed on the binder warp. The proportion of binder ends and the type of stitching depend upon the effect desired. Common stitchings for binder ends are 1/1, 2/2, 3/3, and 4/4. The binders may occur singly or in pairs. When arranged in pairs, the two binders usually interlace counter to each other. The size of the yarn used in the binder warp is usually considerably finer than that used in the other warps.

In laying out weaves employing a binder warp, the same procedure is followed as for regular double cloths excepting that the interlacing of the binder ends is generally represented by the use of blue paint. In some interlacings it might be advisable to paint in the binder weave before painting in the back weave, and then cause the back interlacing to conform to the interlacing of the binder ends.

Fig. 29 is a small design showing the use of a 1/1 binder. Crosses represent the binder ends. Fig. 30 represents a cross-section of the weave shown in Fig. 29 and illustrates the action of the binder ends.

Fig. 31 illustrates a double plain-weave narrow fabric in which a 1/1 binder is incorporated.

Binder ends are usually drawn on the front set of harnesses, as shown in Fig. 29. One reason for this is that these ends are generally the most important adjunct in the construction of the type of webbing in which they are employed and therefore are accorded the most advantageous positon. Another reason is that it is oftentimes necessary to draw the binder ends through a consider-

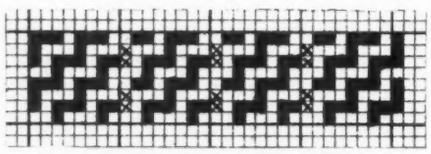


Fig. 27.

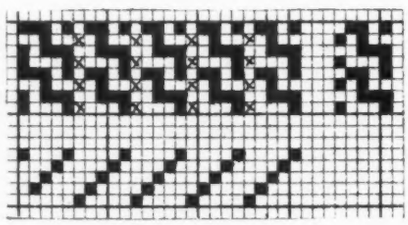


Fig. 29.

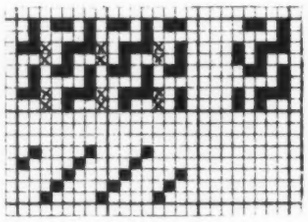


Fig. 32.

able amount of warp yarn, and the sharper the angle at which they may be drawn the more easily the task may be accomplished.

As the binder ends, in interlacing with both the face picks and back picks, must traverse a much greater distance than do the ends of either the face or back warp (see Fig. 30), the take-up, or the length of binder warp required to produce a given yardage, is of course considerably greater than that of the other warps. Sometimes the take-up of the binder warp is as great as five times that of the regular face or back warp. Consequently, the binder ends are almost invariably wound on a separate warp beam.

The Two-and-Two Binder

When using a single 2/2 binder in conjunction with the double plain weave, the binders must interlace (in relation to the face and back weave) as shown in Fig. 32. Here, also, crosses represent binder ends; and it will be noted that each binder end is raised over the picks under which the adjacent face end is lowered, and is lowered under the picks over which the adjacent back end is raised. If the binders interlaced one pick earlier—i.e., started with one-up, two-down—the back stitch would be imperfect. If the binders interlaced one pick later—i.e., one-down, two-up, etc.—the face stitch would be imperfect. If the binders interlaced two picks earlier or later, both face and back would be stitched alike, but the best binder effect would not be obtained.

When two 2/2 binders are used in combination with the double plain weave, they must be so arranged that the binder end next to the face end is up on the pick on which the face end is down, and the binder end next to the back end is down on the pick on which the back end is up. This arrangement results in a pronounced binder effect.

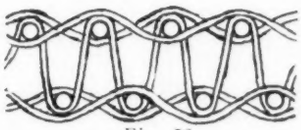


Fig. 30.

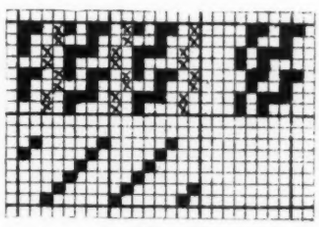


Fig. 33.

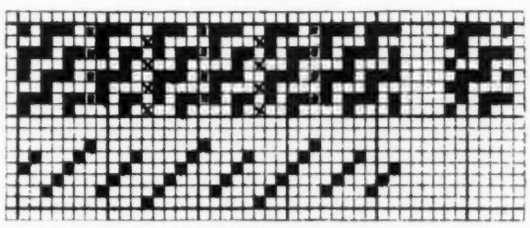


Fig. 34.

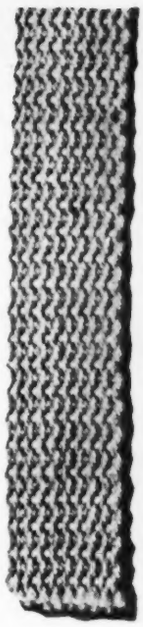


Fig. 31.

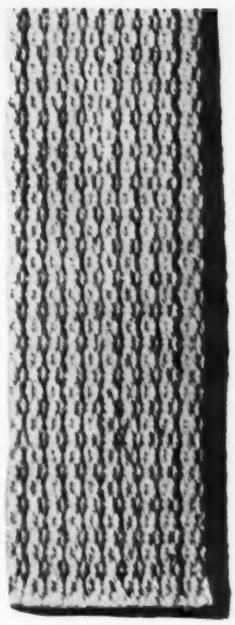


Fig. 35

Fig. 33 shows the proper arrangement for the use of 2/2 binders for best results with a double plain weave.

Use of a Stuffer Warp

Oftentimes in narrow fabrics constructed of double-cloth weaves an extra warp is added for thickness or where additional strength or weight is required. This supplementary warp is termed a "stuffer" warp or "gut" warp and is incorporated between the face and back fabrics, where it is entirely hidden. Unless it is to be used also for figuring, the stuffer warp may consist of inferior or off-colored yarns.

Where a stuffer warp is employed, the binder warp is usually indispensable; and in such cases the binder ends perform a double duty—they bind the face and back fabrics together and they separate and confine the stuffer ends into comparatively small groups. Otherwise, the stuffer ends would not remain in a definite position, but would have a tendency to roll around between the upper and lower fabrics.

The method of laying out designs for fabrics requiring a stuffer warp is the same as for other double-cloth weaves, excepting that the stuffer ends may be designated by the use of a dark yellow paint. They must be raised over every back pick and lowered under every face pick. Black or blue paint may be used to indicate the stuffer interlacing.

Fig. 34 shows a design for a double plain-weave narrow fabric in which a stuffer warp and binder warp are incorporated, together with the harness draft and chain draft. The crosses indicate the binder interlacing and the stuffer ends are represented by the incomplete squares. Note that the stuffer warp is drawn on the back harness. As it is the least important of the three warps (from the viewpoint of interlacing), it may thus be relegated to the least advantageous position.

Stuffer warp has, ordinarily, very little contraction in weaving—100 yd. of warp often producing 100 yd. of webbing. Because of this fact, the stuffer warp, like the binder warp, is usually placed on a separate warp beam.

Fig. 35 illustrates a double plain-weave narrow fabric in which both a binder warp and a heavy stuffer warp are incorporated. Note the ridges formed by the tightened binder ends.

The first two articles of this series (TEXTILE WORLD, January and February, 1934) gave a general analysis of the textile processing industry as a whole and discussed the organization of the various branches under the Recovery Act. This installment, the final article of the series, considers the economic problems of the cotton finishing and silk finishing divisions.

Textile Processing . . .

MAJOR PROBLEMS OF COTTON AND SILK FINISHING BRANCHES

By Winn W. Chase
Assistant Editor, TEXTILE WORLD

FROM a small industry of 25 concerns in 1920, the silk finishing branch has multiplied to a total of 134 plants today; in 1920 there were less than 90 silk printing machines, today there are 260. During the decade of rapid expansion of silk finishing industry, profits were not difficult to make, wages paid were relatively high.

Then, with no semblance of organization or means of control, the silk finishing industry was unable to prevent the entrance of corrupt trade practices. Design piracy, price cutting, unlimited hours of plant operation, wage slashing, secret rebates, free art service and engraving, allowances for fictitious claims became the rule rather than the exception. As a result, only a few concerns doing a specialty business were able to avoid losses before depreciation. Labor troubles complicated a condition already bad enough.

In an earlier installment of this series and in our Annual Issue we have shown the changes which have taken place since the Recovery Act became effective. A large percentage of the industry has organized under the Institute of Dyers & Printers; a code of fair competition which outlaws design piracy and other corrupt practices has been approved; labor differences have been settled, for the time being at least.

But this is not enough. Drastic measures are still necessary.

It has been asserted that the competition of the cotton finisher for the processing of fabrics composed in whole or in part of rayon or other synthetic yarns is the most serious danger which confronts the silk finisher. Actually there is no indication that during the next few years the cotton dyers or printers will absorb any appreciable amount of the business which is now being conducted by the silk finishers, providing the latter set their own houses in order. That is, the cotton finishing plants are not located, organized, or equipped to handle those types of fabrics which comprise the bulk of the work now processed in silk finishing plants. Furthermore, any inclinations to compete for this work that the cotton finishers may have had a few months ago have disappeared as a result of their experiences during the strike last September and October in the silk dyeing industry.

Today the real problems of the silk finishers are due mainly to two conditions: (1) the industry is inherently a non-integrated one, composed largely of relatively small units, many employing less than ten workers; and (2) there is in place a large excess of silk and rayon finishing equipment.

It appears to the writer that the rehabilitation of the silk finishing industry can be accomplished only by weeding out the poorly financed and inefficiently operated plants which make up a large percentage of the total number of units. This probably will be preceded by a further reduction of machine hours; which will act as a temporary palliative. Consolidation under strong management of groups of these small concerns, together with the junking of a large amount of obsolete machinery, is, however, the logical procedure, and one which we anticipate in the not too distant future.

Cotton Finishing Problems

In recent years a significant change has taken place in the cotton finishing industry. Ten years ago about 25% of the total volume of goods sold by cotton manufacturers was in the form of finished fabrics. Since then a number of cotton mills have installed dyeing, printing, and finishing equipment; likewise there have been several mergers of textile companies through which cotton manufacturers have acquired control of finishing plants. At present about 42% of the total volume of gray goods (or 50% of fabrics which are finished) is sold in the form of finished goods by mill and corporation finishers. That is, there has been a marked trend toward the integration of the manufacturing and finishing branches. This change has brought about a shift in business which has caused a large decrease in the annual volume of fabrics processed by many of the job finishers.

It is unnecessary to reiterate here the advantages and disadvantages of the mill finisher as compared with the job finisher. On the whole, the mill finisher appears to be in the more advantageous position (particularly in the case of staple goods) and is steadily gaining ground. The plight of the job finisher, on the other hand, is not a happy one. Therefore it is with his problems that we shall most concern ourselves.

These problems are many; but in large part they

are due to conditions similar to those which prevail in the silk finishing division. That is, the job finishing industry is a non-integrated one and suffers from the inherent disadvantages of that status; and it has a large excess of productive equipment. In addition, the job finisher of cottons faces serious competition from the mill and corporation finishers. On the other hand—because of differences in the size of units, the type of materials processed, and other factors—the solution of the problems is not the same in the two branches.

It appears certain that the mill and corporation finishers will make still further inroads into the business of the job finishers. This being so, it follows that many of the job dyers and printers must reorganize their plants in such a way as to permit a profit on a smaller volume of business than is necessary today. This will call for scrapping of obsolete equipment and installation of modern machinery, tearing down of buildings no longer used, specialization of work, and other measures applicable to the particular case. Whether his plant is large or small, or is to shrink or expand, every job finisher is up against the problem of securing a reasonably steady flow of work in sufficient volume to insure profitable operation.

Those finishers who are alive to the underlying causes of the difficulties of the job finishing industry realize that there is no universal solution to these problems. Therefore each one is endeavoring to find a formula which will apply to his particular case. We shall consider briefly some of these methods which give most promise of success and which are capable of more or less general application:

Many finishers, whose plants are located in close proximity to large industrial users of certain types of finished textiles have capitalized this advantage and are processing practically all of the goods required by these manufacturers. It is surprising, however, to note the large number of finishing plants which have failed to make the most of such an advantageous geographical location.

A few job finishers have been able to purchase certain lines of goods in the gray, finish, and sell them; but this practice seems to be neither feasible nor advisable for general adoption. It is not necessary to go into all the pros and cons of the matter, but merely to point out that not many job finishers are in a position to set up the merchandising organization necessary to the success of such a plan.

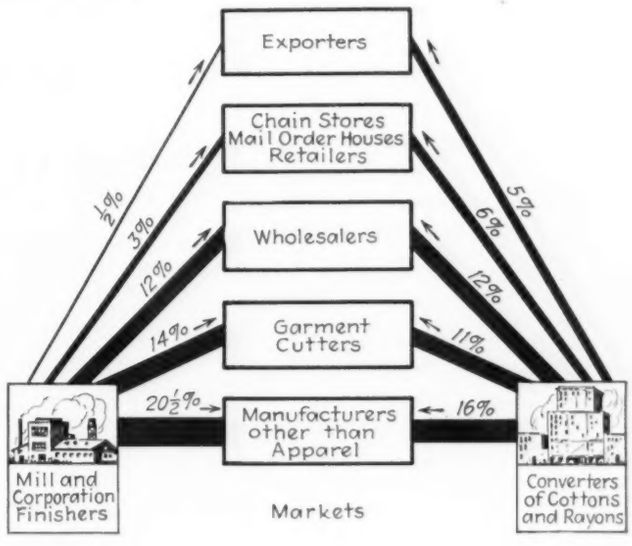
Other job finishers have been successful in making more or less definite long-term arrangements with a large wholesaler, jobber, or mail-order house.

Still other job finishers are definitely tied up with a holding company or gray goods mill, from which in normal times they obtain sufficient business (say 30 to 50% of total capacity) to cover all fixed charges, as well as processing costs on the volume received.

It is the converters, however, upon whom the majority of job finishers must depend for the bulk of their business. And, conversely, the converters' destinies are linked inexorably with those of the finisher. In the last few years, unfortunately, the converter and job finisher more often than not lost sight of the mutuality of interest which exists between them. Like the finisher, the converter has not had the easiest of times in recent years; and in the effort to get the most for his money, he has changed accounts frequently. Today, however, the job finishers and converters are beginning to regard themselves as allies, rather than enemies. In a number of instances, for example, job finishers have given financial backing to converters and thus have strengthened the tie between them.

One of the most radical developments and one which is being watched with great interest is the converter-finisher set-up in which a job finisher arranges with a group of converters to process the total volume of fabrics converted by the group. Such an arrangement relieves the job finisher of the necessity for a large selling organization, if any at all, as he works through definite channels, thereby reducing costs. The question of "gains" is solved automatically, and other forms of wasteful competition between the converter and finisher are done away with. Given an efficiently managed plant and an alert and aggressive group of converters handling a well-diversified line of fabrics, the converter-finisher combination has, theoretically at least, many advantages. It is probable that a converter-finisher set-up of this type presupposes a good-sized finishing plant capable of processing a wide range of fabrics. There is no basic reason, however, why the idea cannot be further extended to include not one large finishing plant, but a group of smaller plants, preferably under a consolidated management. In such a combine, work would be specialized, each plant concentrating on a limited number of lines for which it is best suited.

We have seen that the cotton-finishing industry is to a large extent still a non-integrated one, and suffering from the inherent disadvantages of that status; this however is less true today than it was a few years ago.



Distribution of finished cotton fabrics showing way in which mill and corporation finishers and converters having goods processed by job finishers compete in same markets. Width of lines indicates relative volume of business in each market

While we do not look for complete integration—and doubt if it is either necessary or desirable—we expect further changes in this direction. This progress in the main will probably be along two major routes: The bulk of the staple fabrics will be handled by mill finishers and corporation finishers; specialty fabrics and those depending on style trends, etc., will be handled by converter-finisher combinations of one type or another and by corporation finishers.

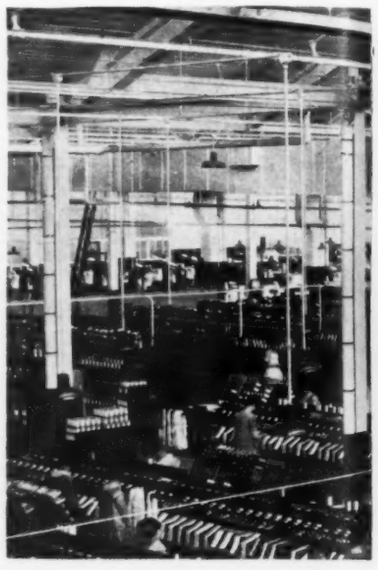
How fast the industry will move in these directions cannot be predicted. At the moment the independent job finisher is still the most dominant factor; but it seems certain that he will become less important in the next few years. However, there are a great many niches into which the job finishers fit and which they can continue to fill if they do not attempt to struggle against the tide, but adapt themselves to the changing conditions in the industry.

Throwing Silk and Rayon

AIR CONDITIONING FROM THE CHEMICAL ENGINEERING STANDPOINT

A QUESTION of concern to the silk throwster is to what extent the air conditioning of mill rooms is necessary to enable production of a superior yarn. The closer that yarns can be held to that point where moisture as water is an inherent property of the yarn, the better the yarn can be processed. To hold the yarn at or near its normal regain point is the goal of every mill operator; and this demand has resulted in devices, adaptations, and partial and complete conditioning equipment to attain these ends.

At present there is no uniform practice of conditioning throwing plants; and, in fact, no finished study has been made to establish the relation between the atmospheric conditions of various throwing departments and the maintenance of a uniform condition of the yarn during its flow through the plant. With few exceptions, throwing and knitting mills have had conditioning equipment installed after the mill has been in operation. This has resulted in fitting air conditioning equipment to suit the available space left, and in most cases has not adequately filled all requirements. However, the mill operator has found that any type of conditioning equipment he could add has made the fabrication of his yarns very much easier.



Raw silk and rayon yarns as they come from the producers are adjusted to a maximum moisture-content basis and are sold with the understanding that the yarns contain a definite moisture content. Thus, silk in skeins, being subjected to an atmosphere of 70° F. and a relative humidity of 67%, will pick up or regain 11% of moisture. That is, under these conditions 100 lb. of dry silk as skeins will increase in weight to 111 lb. The actual moisture content of this regained silk is 9.91%. Rayon yarns are also shipped from the manufacturer on a regain basis of 11%. As rayon differs so much from silk in its chemical composition, and as it is very closely allied to cotton, it follows the regain tables of cotton much closer than silk. On the basis of 70° F. and relative humidity of 67%, its regain (cotton tables) would be 9.1%. The throwster desires to send out the yarn on the same moisture basis as he has received it. There is the fight to narrow the limits between 9.91% moisture on incoming yarn against a possible 7.5% moisture in outgoing yarn. To make up this 2% or more of weight, the addition of moisture is the most logical and economical way.

In a hosiery knitting mill, where a uniform moisture content of the air is felt to be of great importance, at a mill temperature of 85° F., air saturated with water vapor will hold 12.88 grains per cubic foot; at a temperature of 60° F., it will hold 5.8 grains per cubic foot. In a knitting room of 150,000 cu.ft., this change in temperature would mean robbing the room of 152 lb. of water. This shows that humidity (amount of water vapor in atmosphere) is closely related to temperature.

Small conditioning or humidity rooms are commonly used in knitting plants to raise the moisture content of coned yarns to a point where they more freely pick up water on the knitting machine. These rooms are usually held at a temperature of 95° F. and 95% relative humidity. [Relative humidity is the amount of water vapor in the air at a definite temperature as compared to the maximum amount of water vapor the air will hold at the same temperature; and saturated air has a relative humidity of 100%.] The maximum regain of the coned silk will be 17.7%, or an actual moisture content of 15%. Usually such cones never attain their maximum moisture content and are presented to the hosiery machines with an average of 12 to 13% moisture.

When these cones are placed on the knitting machine and subjected to an atmosphere little different from the knitting room, the moisture content of the cone rapidly drops and furnishes moisture to the room. Yarns, as they are processed, usually drop in moisture content. Surrounding them with a conditioned atmosphere at least keeps them from losing moisture too rapidly; but unless special arrangements are made to add moisture to the silk package, the moisture content generally tends downward.

The following data are characteristic of moisture trends during the routing of a normal lot of hosiery tram through a throwing plant.

	MOISTURE CONTENT	
	Soap and Oil Formula	Sulphonated Oil Formula
Silk from centrifugal	105.00%	105.00%
1st day air-drying in winding dept	44.61	.....
2nd day air-drying in winding dept	37.72	43.37
3rd day air-drying in winding dept	32.56	37.53
4th day on winder bobbins	13.00	10.08
5th day on 5-B bobbins	8.76	9.95
6th day on 5-B bobbins	8.19	8.66
8th day on 5-B bobbins	8.67	.....
9th day on cones in shipping case	8.72	9.90

These data were collected over a period of ten days, which were clear and bright, with an outside tempera-

By Dale S. Chamberlin, D.I.C.
National Oil Products Co.
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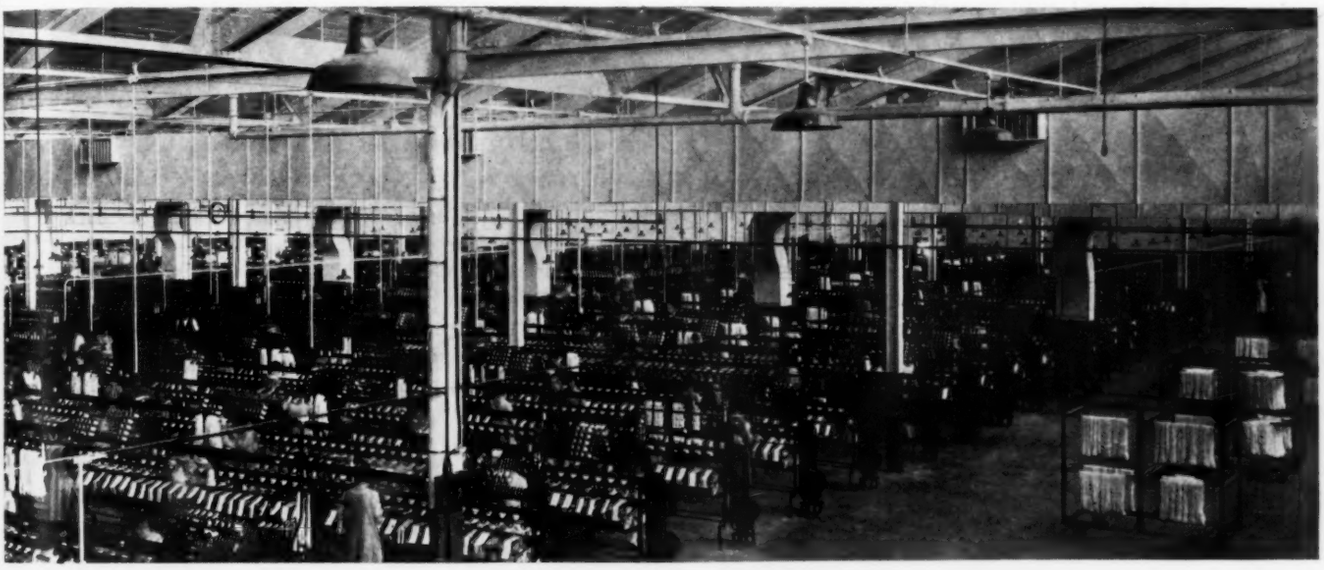
ture from 67 to 75° F. The average inside temperature was 85° F. The winding department was not conditioned, but an average relative humidity of 40% at 80° F. was maintained at the expense of the silk air drying from 105% to a minimum of 10%. All other departments were humidified with an average relative humidity of 55% at 85° F. A study of these data shows that even under fair air-conditioned surroundings yarn in any of its package forms will tend to obtain equilibrium



with the air conditions, but in most cases falls short (at 55% relative humidity at 85° F., regain 8.8, actual moisture content 8.1%).

Analyzing these data further, we find that the drying of skeined silk in the winding department to a point where winding the silk does not produce hard bobbins will yield a moisture content of 10%. As soon as the yarn undergoes doubling on 5-B's and spinning, the moisture content usually drops to a minimum in spite of conditioning. This drop in moisture content is due to radiant heat, convection currents, and the centrifugal throw of the yarn. On twist setting by steam methods, yarn on steaming bobbins or shafts usually picks up about 2% moisture content, and by the newer methods of twist setting 4%. This is rather fugitive moisture; and by the time the yarn attains redrawing or coning and goes through these operations, the actual moisture content is again at the minimum.

In rayon throwing, air conditioning of all departments is particularly necessary. Rayon after its soak-sizing operation is usually dried in forced-drying systems to near bone dryness. The yarn is incased in some difficultly penetrated sheets. From this point through winding to final copping, or even into the fabric, the best humidified mill conditions are barely adequate to raise the moisture content of the yarn much above 7 to 7.5%.

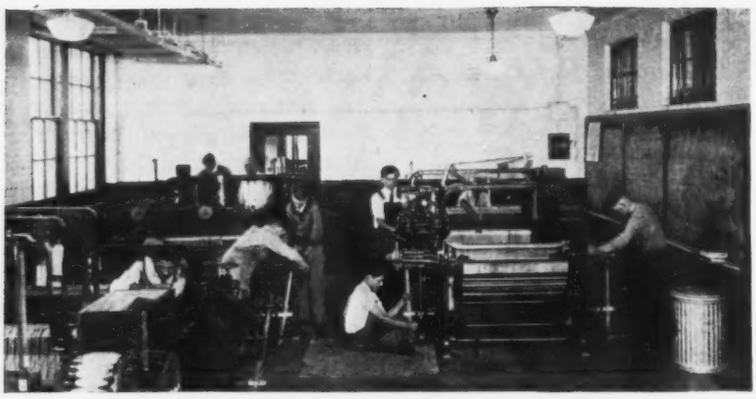
There are several factors that should be considered in the preparation of the yarn stock, so that when it is subjected to conditioned air, moisture will be taken up to the maximum. In the building of yarn packages, the more open the yarn wind, the better opportunity the water vapor has to penetrate into the mass. This can be brought about by speeding up the traverse in winding, spinning, coning, etc., so there are fewer coils in the length of the yarn holder. Perforated spools, shafts, cones, cylinders, and cops will allow internal penetration into the yarn and thus cut down the water vapor travel to the center of the yarn mass. The fixed-gain mechanism on coning machines resulting in an open basket wind is a decided advance in constructing yarn on perforated cones for the best conditioning-room practice.

The use of moisture-demanding agents as carried by the silk from the soaking bath gives the yarn hygroscopic properties. The choice of soaking materials that are in themselves non-drying will prevent water-resisting films. When such factors are controlled as far as is practical, how can the water be best applied to the mill atmosphere to yield a rapid equilibrium between the air and the yarn mass?

Whatever kind of conditioning equipment is selected, the basic principle is to project water in an atomized or vapor form into the air. Warm water breaks apart or atomizes better than cold water. The warmer the air into which the water droplets are projected, the closer the water particles approach molecular size or the state of a gas. The higher temperatures increase the speed of travel of water vapor particles. If the water vapor supply is sufficient for the mill room, the particles are of such size as to pass freely into the depth of the yarn mass and there be absorbed and adsorbed. This is quite evident, for knitting conditioning rooms with ample humidification and low temperatures of 70° F., or under, generally cause moisture on the surface layers of the silk. The only way the silk package can be conditioned on the inside is then by slow capillary processes.

Air conditioning or the standardization of internal weather conditions is of primary importance to the throwster, the knitter, and the weaver. If yarns are to be run uniformly, atmospheric conditions should be held constant.

How to obtain maximum returns from humidified atmospheres is an engineering problem; and the design and installation of suitable equipment is the business of those who are experienced in air-conditioning engineering.



Vocational class in loom-fixing, Parker District, Greenville, S. C.

Vocational Instruction

INCREASES EFFICIENCY OF TEXTILE MILL OPERATIVES

GREATLY increased interest in vocational training classes has been manifested by textile mill workers in recent months. This development is due largely to effects of textile codes: (1) the adoption of operating schedules that make it more convenient for workers to attend classes; (2) an increased demand for capable overseers, second hands, loom fixers and card grinders, especially in mills that have changed from single-shift to double-shift operation; and (3) code regulations which limit the period of the apprenticeship wage, thus making it necessary for unskilled workers to obtain training outside the mill.

Executives of mills where vocational classes have been conducted for several years are enthusiastic over results. In the great majority of cases these mills no longer find it necessary to look beyond their own organizations for good loom fixers, card grinders or second hands. Even in plants where vocational instruction has been in progress only a few months, an improvement in efficiency has already been observed.

The majority of vocational classes are supported through a combination of Federal, State and local appropriations. At a time when the need for this kind of education is increasing, it is unfortunate that some States have curtailed their expenditures for this purpose. Federal funds available under provisions of the Smith-Hughes Act are for payment of teachers' salaries only, and are contingent upon an additional amount being raised from other sources. During the present emergency the Civil Works Administration has allotted some relief funds for the operation of vocational training classes, but of course this provision for operatives' training is a temporary program.

In the Parker School District, at Greenville, S. C., which includes almost every important textile mill located in that city, vocational classes have been conducted regularly for several years. Although complete figures are not readily available, it is estimated that at least 5,000 mill employees in Greenville have attended these classes at one time or another. At present, according to Loui Greet, vocational director of Parker District Schools, there are 350 mill workers enrolled in 27 vocational classes. It has been necessary to limit the size of some classes to permit thorough instruction for the individual, otherwise Parker District vocational courses would have had much larger enrollment this year.

Among the more popular courses offered in vocational schools are those covering the following subjects: card grinding, frame fixing, drawing-in practice, weaving, loom fixing, textile calculations, cloth analysis and design, machine-shop practice, mechanical and architectural drawing, cabinet making, and show-card writing. Classes are held in most cases during the daylight hours, so that workers on the first shift may attend school in the afternoon and those on the second shift may join the morning classes.

The scope and method of instruction must be modified to suit local conditions. In planning courses involving mill practice, such as weaving, loom fixing and card grinding, every effort should be made to avoid presentations that are too theoretical. In many cases the aid of superintendents, overseers and skilled workers may be obtained in the preparation of mimeographed manuals for teaching the various courses. Text books in general use in vocational schools attended by cotton mill operatives include: "Practical Loom Fixing" by Thomas Nelson, and "Cotton Mill Calculations" by Quigley and Smith.

Mill executives who appreciate the value of vocational training classes take an active interest in this work. Not only do they insist that key-men in the mills display a friendly spirit toward vocational classes, knowing that this attitude will have a favorable effect upon the morale of both students and teachers, but also they supply classes with equipment and materials. Some mills furnish demonstration looms, cards or other machines, pictures and drawings of machinery, samples of sliver, roving, yarns and fabrics, and in addition permit frequent plant visitations by these classes.

Vocational training classes are receiving more support from textile manufacturers, especially in the South, where double-shift operations make it convenient for workers to attend classes. Among the concerns undertaking broader programs for employee education at the present time are: Stonecutter Mills Co., Spindale, N. C.; Goodall Co., Knoxville, Tenn.; Slater (S. C.) Mfg. Co.; Burlington (N. C.) Mills Co., and Proximity Mfg. Co., Greensboro, N. C.

THE PERSONAL PAGE

W. W. Neal, Sr., president and treasurer, Marion (N. C.) Knitting Mills, Inc., has been appointed to the NRA national advisory board to study the effect that codes are having on small industries.

G. M. Williams, former president of the Marmon Motor Car Co., has been named president and general manager of the Russell Mfg. Co., Middletown, Conn., succeeding **T. M. Russell** who becomes chairman.

John F. Fowler, formerly executive vice-president of the Cartersville (Ga.) Mills, has been elected president. **B. C. Sloan** is now vice-president and **E. H. Haight,** vice-president and secretary.

R. Grady Rankin has resigned as co-receiver of Textiles, Inc., Gastonia, N. C., to accept an executive position with the Duke Power Co., Charlotte, N. C. **A. G. Myers** will continue as receiver of the combed yarn concern, Mr. Rankin's position remaining vacant.

R. Edgar Benson, Jr., Robert S. Bowe, Frank W. Jeffers and **John D. Sculley** are newly elected vice-presidents of Southeastern Cottons, Inc. They are department heads.

Russell E. Dill has been appointed treasurer and general manager of the Propper-McCallum Hosiery Co. **Samuel S. Kahn,** who has served as treasurer and sales manager, will continue his duties as sales manager.

Willard Lewis has been elected president of Riverside Mills, Augusta, Ga., succeeding **T. M. Hefferman,** who retired after being connected with the company for nearly half a century.

William A. Broadhead has been elected president of the Jamestown Worsted Mills, Jamestown, N. Y.

Franklin W. Hobbs, former president of the National Association of Wool Manufacturers, was the recipient of a gold watch at the association's annual meeting in New York, Feb. 14, given as a mark of appreciation of his many years of service to the industry in numerous offices. Presentation was made by **Addison L. Green.**

Herbert S. Morrow, vice-president of Slater Co., and **W. S. Nicholson** of Union, S. C., both of whom lately retired as deputy administrators of NRA, were tendered a dinner in Washington at which Division Administrator Whiteside, Sam C. Lamport, Senator Brookhart, former-Governor O. Max Gardner and others spoke. Mr. Nicholson has resumed management of Excelsior Mills, Union, S. C.

Edmund Wright, active in textile credit circles for many years, has been selected to succeed the late Sol C. Moss as president and executive director of the Textile Converters Association of America. Mr. Wright was formerly of Morton Meinhard & Co. and a member of Edmund Wright-Ginsburg, Inc.

Sam Stern was elected president and general manager of the Oregon City Woolen Mills, Portland, Ore., succeeding the late A. R. Jacobs. He has been vice-president for seven years.

Frank P. McCarthy, treasurer of the Troy (N. Y.) Waste Co., has been elected president of the Faith Mills, Averill Park, N. Y., succeeding **W. C. Geer,** resigned.

Dexter Stevens, vice-president of Utica & Mohawk Cotton Mills, has returned to the Esmond (R. I.) Mills where he was formerly a vice-president and director.

Charles P. Boyd has been elected president of the Beacon Mfg. Co., to succeed his father **Charles M. Boyd** who declined reelection.

Leonard S. Chace, treasurer of Lawton Mills, Plainfield, Conn., has been authorized by the directors to take over the selling agency of the company.

John A. Skedgell, formerly vice-president and general manager of Joseph A. Bancroft & Sons Co. of Pennsylvania, Reading, Pa., has been appointed agent of the Grosvenor-Dale Co., North

Sherman Haight, of A. S. Haight & Co. newly elected president of Underwear Institute

W. D. Carter, newly elected president, Carolina Cotton & Woolen Mills Co.

Grosvenor Dale, Conn. It was announced in our last issue that **J. Frank Morrissey** had been appointed to the post, but Mr. Morrissey subsequently decided to remain as superintendent of the Interlaken Mills, Harris, R. I.

H. H. Pepler, manufacturing manager of Powdrell & Alexander, Danielson, Conn., has also been made general manager of the Powdrell-Dartmouth Mills, New Bedford, Mass.

Nathan M. Ayers has become treasurer of the Triangle Hosiery Mills, High Point, N. C.

Henry McKelvie, formerly plant engineer of the High Shoals (N. C.) Mill of Manville Jenckes Co., has been appointed agent of the plant.

J. C. Brannan has been appointed general manager of the Banning (Ga.) Cotton Mills.

Edwin M. Holt has been made manager of the Cooleemee, N. C., plant of the Erwin Mills Co., succeeding the late **J. W. Zachary. Irwin T. Graham** has been appointed assistant manager. **A. R. Marley** has been transferred to Durham as superintendent of Erwin Mill No. 6.

Robert W. Boys, since last May agent and general manager of Green River Mills, Inc., Tuxedo, N. C., was elected president at the annual meeting held Feb. 13. He succeeds the late **George Fish.** Mr. Boys was formerly superintendent of the cotton division of Farr Alpaca Co., Holyoke, Mass.

B. M. Corlette has resigned as president of the Belle-Meade Hosiery Mills, Nashville, Tenn., and has become associated with the sales department of the May Hosiery Mills, Nashville.

Hugh McKelvie has been placed in charge of the High Shoals, N. C., plant of the Manville-Jenckes Co. **J. A. Baugh,** vice-president, who formerly managed both plants, will devote his entire time to the Gastonia plant.

Harry N. Ubelacker, general manager of La France Textiles, Ltd., Woodstock, Ont., has been promoted to the office of vice-president of the firm, as well as a director of La France Industries, Philadelphia, the parent organization.

Charles S. Payson, New York City, has been elected chairman of the board of the Palmer Bros. Co., New London, Conn., and its subsidiaries, the Union Carpet Lining Co. and New England Carpet Lining Co., filling the vacancy caused by the recent death of **George S. Palmer.**

Henry Roediger, for many years head of the raw cotton purchasing department of the Riverside & Dan River Cotton Mills, Inc., was elected third vice-president of the corporation at the annual meeting. No other changes were made in the official set-up.

E. O. Hunter, who recently resigned as secretary of Aragon-Baldwin Cotton Mills, Whitmire and Rock Hill, S. C., will join Springs Cotton Mills, Lancaster, S. C., in an executive capacity.

C. B. Graves has been appointed secretary of Aragon-Baldwin Cotton Mills, Whitmire and Rock Hill, S. C.

W. J. Crowder, for several years general superintendent of the Toohey Silk Mills, Watertown, N. Y., has been appointed to a similar position with Samuel Strauss & Son, Archibald, Pa.

H. B. Ludlum, although continuing his connection with the NRA as assistant deputy administrator, has resigned his positions as administration member of the following Code Authorities: Carpet & Rug Manufacturing Industry; Upholstery & Drapery Textile Industry; Textile Bag Industry; Underwear & Allied Products Industry; Wool Textile Industry.

S. L. Stacks has become superintendent of No. 1 and No. 2 plants of Jefferson Mills, Crawford and Jefferson, Ga.

Melvin A. Bupp, lately with the Newmarket Mfg. Co., Lowell, Mass., has been appointed superintendent of Edward Bloom Co., New London, Conn.

A. B. Sibley has been named superintendend of the Darlington (S. C.) Mfg. Co. He was formerly assistant superintendent of Laurens (S. C.) Cotton Mill.

T. C. Giles, superintendent of the Warren plant of the Graniteville Mfg. Co., Warrenville, S. C., has been transferred to the Graniteville, S. C., plant, succeeding the late **C. G. Hall,** as superintendent. **D. C. Russell,** who has been weaving department superintendent of the Warren plant, has been promoted to plant superintendent.

A. L. DeLoach has been appointed superintendent of the Manville-Jenckes Co., High Point, N. C., succeeding W. G. Hardy who resigned.

W. R. Barnett has been appointed superintendent and local manager of the Walcott & Campbell Spinning Co., Gulfport, Miss. He was formerly superintendent of the Alabama Mills Co., Clanton plant.

Ray Preston has been made superintendent of spinning at the Brunswick Worsted Mills, Moosup, Conn. Mr. Preston was formerly with the Bernon Worsted Mills.

J. Engle Arters has been appointed manager of the knitting yarn department of Rider-Osborne-Devine, Inc., Philadelphia.

Percy Ellis has become superintendent of the Sibley Mfg. Co., Augusta, Ga., succeeding **Walter Dillard, Jr.** He was formerly assistant superintendent of the Graniteville (S. C.) Mfg. Co.

W. W. Roach has been appointed New York representative of Spicer Threads, Inc., Hartford, Conn., makers of threads for the manufacturing trades.

James L. Knight has been appointed night superintendent of the Goodyear Clearwater Mills, Plant No. 3, Atco, Ga., succeeding **M. D. Link,** who becomes assistant superintendent of the Goodyear Decatur Mills, Decatur, Ala.

C. B. Graves, Greenville, S. C., has been elected secretary of Aragon-Baldwin Cotton Mills, Whitmire and Rock Hill, S. C., succeeding **E. O. Hunter,** who recently resigned to become associated with Springs Cotton Mills, Inc., Lancaster, S. C.

A. J. Menard has resigned as superintendent of spinning at Blood Knitting Co., Amsterdam, N. Y., to accept a similar position with Joseph Bancroft & Sons Co. of Pennsylvania, Reading, Pa.

Robert Adams is now superintendent of the Saratoga-Victory Mill, Guntersville, Ala.

Chris Walker has been appointed secretary of the Deep River Mills, of Randleman, N. C.

Frank L. Byrd has resigned his position with the Thomaston (Ga.) Cotton Mills to accept a position as second hand in carding at the Goodyear-Decatur (Ala.) Mills.

W. E. Williams is now assistant superintendent of the Dadeville (Ala.) plant of Alabama Mills Co.

Clarence W. Jackson of the Kerr Mills, American Thread Co., Fall River, Mass., has been appointed assistant superintendent of finishing at the Willimantic, Conn., plant.

L. L. Bamberger has become superintendent of finishing, Eagle & Phenix Mills, Columbus, Ga.

Obituary

Eben E. Whitman, aged 54, vice-president and a director of the William Whitman Co., Inc., the textile enterprise founded by his father, died Feb. 27 in Florida following an illness of 18 months. Mr. Whitman was one of the pioneers in the drive to end night work for women and minors and he was active in both the cotton and worsted branches of the business.

Sol C. Moss, president of Moss-Still, Inc., and of the Textile Converters Association of America, died Feb. 23 in New York, following a short illness. He was 57 years old. He had been president for many years of the Textile Design Protection Association and was a member of the Silk Code Authority.

Arthur P. Abbott, aged 73, treasurer of Amos Abbott Woolen Co., Dexter, Me., died Jan. 30. The business was established by his grandfather.

Adolph R. Jacobs, aged 60, president of the Oregon City (Ore.) Mfg. Co., died on Feb. 12. The woolen mills were founded by his father in 1864.

Arthur Ryle, aged 69, president of the Sauquoit Silk Co., died at his home in N. Y. on Feb. 26.

Boyd P. Chapman, president of the Franklin (Mass.) Yarn Co., died recently.

Herman C. Bonsa, aged 63, owner of the Bonsa Knitting Mill, Wausau, Wis., died recently.

George S. Palmer, aged 78, chairman of the board, Palmer Bros. Co., New London, Conn., died Jan. 23 at Lake Wales, Fla. He was the last survivor of the five brothers who founded the company in the 1860s.

Col. Robert Wendell Taft, aged 66, former treasurer of the Coventry Co., died in Providence, R. I., on Feb. 11.

Walter A. Merz, aged 33, connected with the Veeder-Root Co. for 18 years and for the last two years Detroit representative of the company, died on Feb. 6. His home was at Bristol, Conn.

Francis P. Gallagher, former president of the National Association of Woolen and Worsted Overseers and connected with the Arlington Mills, Lawrence, for over 20 years, died on Feb. 9.

Robert S. Mebane, Sr., former president of the Republic Cotton Mills, Great Falls, S. C., died in Pittsburgh recently.

Horace Jealous, aged 67, of Jealous & Baldwin, worsted yarn dealers, Boston, died on Feb. 20. For many years he was with the American Woolen Co.

Edward R. Romary, aged 32, secretary-treasurer of Sutton, Romary & Nicholson, Inc., died at his home in N. Y. on Feb. 4.

S. R. Kennett, aged 63, associated with the Consolidated Textile Corp., Lynchburg, Va., died suddenly Feb. 9.

W. E. Mallory, aged 76, superintendent of Strickland Cotton Mills, Valdosta, Ga., died recently.

Louis deKoven Hubbard, aged 63, former manager, Sidney Blumenthal Co., Shelton, Conn., died in Middletown, Conn., Jan. 25.

John Jackson, aged 82, for 18 years superintendent of the National-Providence Mills, Olneyville, R. I., died recently.

Otis W. Davis, aged 29, assistant purchasing agent of the Proximity Mfg. Co., Greensboro, N. C., died recently.

Austin L. Ford, spinning consultant, and formerly superintendent of Mayo Woolen Mills Co., Millbury, Mass., died in Worcester, Mass., Feb. 14. He was an expert on woolen and worsted manufacture and author of many excellent articles in TEXTILE WORLD, usually signed "Henry R. Woodward."

Charles W. Fisher, for more than 20 years prior to 1932 a representative of the TEXTILE WORLD organization in Philadelphia, died suddenly on Feb. 26 at Llanerch, Pa. He was a member of the editorial staff of the *Textile Manufacturers Journal,* a predecessor of the present TEXTILE WORLD.

James Bromley, aged 85, retired owner of Eastlake Tapestry Co. and former president of Townson Dye Co., died Mar. 1 in Frankford, Philadelphia.

Milton Weil, aged 59 years, a founder and until 1925 vice-president of Gotham Silk Hosiery Co., died Feb. 27 in New York after a long illness.

Percy Heineman, partner in Heineman & Seidman, cotton cloth brokers, New York, died suddenly in Coral Gables, Fla., on March 4. He was 47 years old, son of M. Heineman, a pioneer cloth broker.

Perry S. Green, aged 94 years, retired president of Acme Rayon Corp., Cleveland, and formerly in charge of Acme Woolen & Cotton Mills Co. from 1895 to its dissolution in 1919, is dead.

Daniel B. Keeler, aged 71, vice-president and for 31 years general manager of H. E. Bradford Knitting Mills, Bennington, Vt., died recently.

John M. Cahill, aged 76, retired, died recently in Piqua, Ohio. He was founder of the Superior Underwear Co. and the Piqua Hosiery Co.

Dr. William Richard Cathcart, aged 65, technical chemical director of Corn Products Refining Co., died in an Asheville (N. C.) hospital, Feb. 22, after a brief illness.

Textile Calendar

National Assn. of Waste Material Dealers, annual meeting, Hotel Astor, New York, March 19 to 21, 1934.

Knitting Arts Exhibition, Commercial Museum, Philadelphia, April 23 to 27, 1934.

National Cotton Week, May 14-19, 1934.

Committee D-13 American Society for Testing Materials. Annual Meeting, Chalfonte-Hadden Hall, Atlantic City, N. J., in week of June 25 to 29, 1934.

Southern Textile Exposition, Eleventh Annual Exhibit, Textile Hall, Greenville, S. C., Oct. 15 to 20, 1934.

Federated Textile Industries, Inc., successor to Silk Association of America, Annual Dinner, Waldorf-Astoria Hotel, New York, Feb. 28, 1935.

ETAMINES

Cotton Etamines—

By Harry L. Robertshaw

THERE are very many different constructions of etamine cloth made with wool, rayon and cotton. As an all-cotton dress fabric it is used in a very large way in both piece dye and print. The weave as a general rule is plain; but sometimes when a very heavy sackcloth type is desired, the fabric is woven two ends as one and two picks in one shed, making an oxford-type weave. The yarns used are generally two ends of different sizes, or the same size of yarn with different twists.

Great care should be taken in the plying of the yarn, as any appreciable variation in the turns per inch will show streaky in the cloth. The yarn should be kept as free from knots as possible, as the knots will fail to pass through the reed and so will cause a great amount of stoppage. Knots in the filling make very large bunches, which are particularly objectionable in etamine cloths.

If the yarn is clean and the twisting is watched very carefully, the weaving is an easy job and few seconds are made. But if the yarns are full of knots and the twisting uneven, it is another matter.

In Fig. 1 is shown a cotton etamine 40 in. in width, 32x32, 4.35 yd. per lb. In both warp and filling the yarn is a ply consisting of one end of 30s twisted right with 3.10 times the square root of the count, and one end of 30s twisted right with 6.00 times the square root of the count, the two singles being plied together with 10 turns left. In the ply-twisting the yarn with the twist constant of 3.10 should be delivered 5% faster than that with the constant of 6.00 in order that a good spiral will be made. The weave is p'ain.

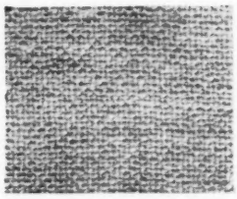


Fig. 1. Cotton etamine of ply yarns made from singles of different twists but same count.

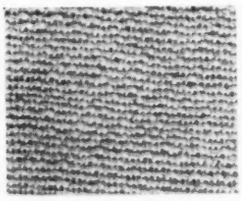


Fig. 2. Cotton etamine of ply yarns made from singles of different counts but same twist.

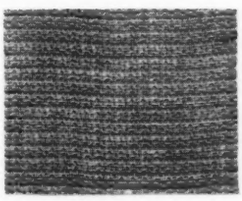


Fig. 3. Worsted etamine.

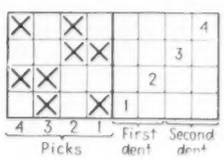


Fig. 4. Weave for Fig. 3.

In Fig. 2 is shown a cotton etamine 38 in. in width, 28x24, 3.25 yd. per lb. In both warp and filling the yarn is a ply consisting of one end of 13s twisted left with 4.50 times the square root of the count and one end of 25s twisted right with the same twist factor, the two singles being plied together with 7 turns right twist. The weave is plain.

Details of construction are here given for a class of fabric which is of current interest in various dress goods markets. It has been mentioned in dispatches from Paris as likely to be of importance in the spring and summer dresses. Two synthetic etamines were illustrated in the article "Fabrics of 1934" in the TEXTILE WORLD Annual (issued Feb. 28).

Wool Etamines—

By R. A. C. Scott

"ETAMINE" is distinctly a French word corresponding to our English word "bunting," and the term describes fairly accurately the characteristic of this fabric. It may be classified under the type of material known as "voile," being a thin, light-weight, and open-textured worsted dress cloth dyed in the piece. Originally this loosely constructed fabric was used as a filter cloth and was made of silk, cotton, and linen, in addition to wool. There is nothing very difficult so far as actual manufacturing of this fabric by the worsted mill is concerned, although at the same time it cannot be designated as simple. The two chief characteristics of the material are its open textural appearance and its rather crispy handle. The former is obtained by the weave and the order of denting; and the latter, by the specially constructed yarns.

The fabric in Fig. 3 is a typical etamine and is set as follows: 27 reed, 2 in dent, 64 in. wide in loom, and 56 picks per inch. Both warp and filling are two-ply 70s worsted hard twist. The finished weight is 6 oz. (54x36 in.). The weave is shown at Fig. 4, and particular attention is called to the order of denting.

It should be noted that, whereas this count of yarn would permit of between 70 and 80 ends and picks per inch, a much looser construction is employed. This makes for a better weaving job, and at the same time aids materially in preserving the gauze or openwork texture of the fabric, which is further accentuated by the formation of the weave and the order of denting. The latter is very important and essential to obtaining the correct grouping of threads when the degree of intersection varies.

Due the fineness of yarn required for this light-weight material, it is necessary to use a fairly fine botany yarn, although it may be permissible to blend with it a small percentage of good-quality rayon, which, besides cheapening the finished product, would also give it a lustrous effect and enhance its selling value accordingly.

The single yarns are both twisted fairly hard and follow the same direction as the two-ply hard twist, in this case right twist.

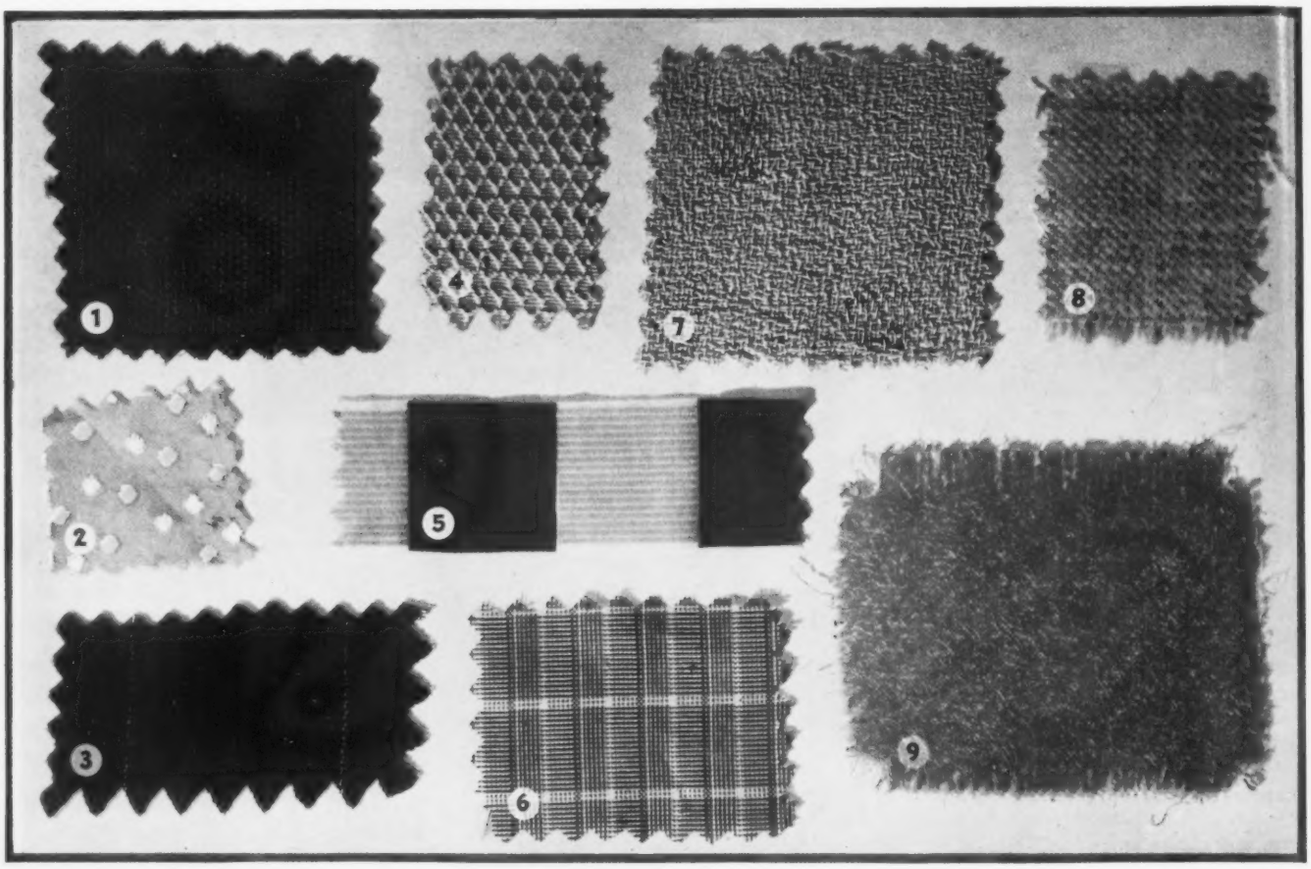
In order to retain the crispy handle, this fabric should not be fulled, but scoured only, after which it is dyed, examined, etc., and finally pressed.

Although only one type of weave is given, many other weaves of equal firmness could be successfully employed, such as mock leno, three-harness diced crow, and basket varieties.

Irregular denting arrangements may also be used rather effectively, employing the plain weave.

For women's dresses the etamine type of fabric is ideally suited, especially in warm climates.

New Fabrics Launched



1. *Alpaca, the most important fabric of the Parisian spring openings.*
2. *Taffetas scored heavily—Faconné taffeta from Lyolene.*
3. *Lamé-run, dull satin crepon.*
4. *Fancy synthetic used by Lyolene.*
5. *Tie silk used by Mainbocher.*
6. *Fine plaid taffeta. Maggy Rouff featured similar fabric in black and white.*
7. *Rodier's metal-embroidered linen.*
8. *New kasha-like spun rayon, a forerunner for new fall season.*
9. *A novelty of spun cellophane—appears nearly 100% shredded cellophane.*

EACH season when the Paris couturier openings are held certain definite and new developments are placed upon the record of fashion. This season, amid riot and red fire, following points were registered:

1. There was launched a silhouette sweeping away from the figure, fore or aft, often with horn-like draperies and adorned with ruches, which is best expressed in fabrics having a fair degree of crispness.

2. Taffetas were given widespread acceptance.

3. Alpaca, both wool and synthetic, generally used.

4. A big print season was assured by the way in which all of the important French houses employed this type of fabric for day and evening clothes.

5. Continued importance of heavy sheers was established, including many new novelty weaves.

Definite placing of the crisper fabrics in the mode is an important development which will without doubt affect future fashions. Among the French houses which used taffeta were Paquin, Worth, Lanvin, Mainbocher, and Lucile Paray. Plain taffetas, checks, plaids and warp prints were all in evidence, and the material was employed for day dresses, suits and blouses, for evening gowns and wraps.

Other crisp fabrics seen at the openings included surah, sponsored by Vionnet for coats; tie silks, employed by Mainbocher and other houses; slipper satin, used by Mainbocher for evening wraps; tulle and net, used by Vionnet, Lelong, Paquin, Ardense and others; organdie, used by nearly everybody.

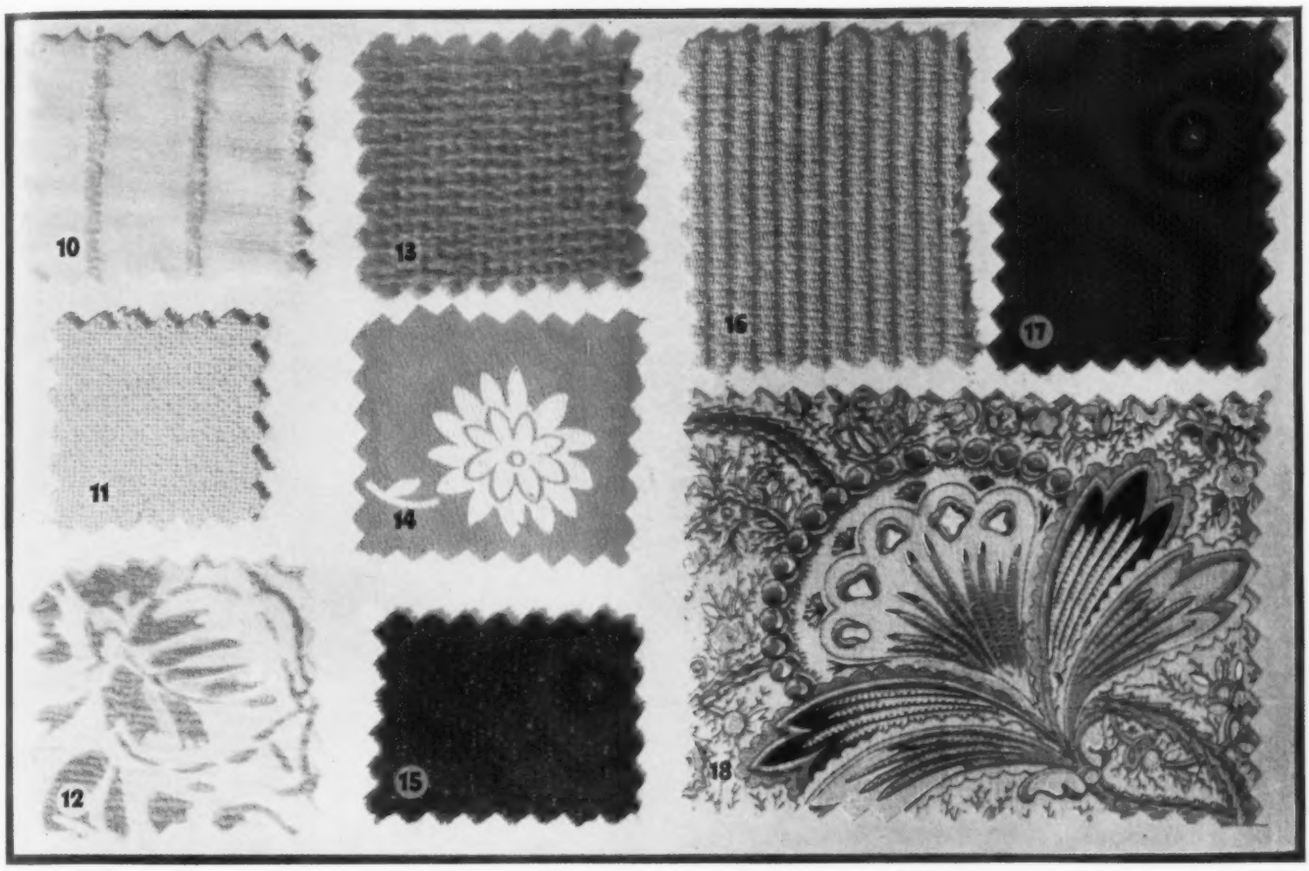
Alpaca, launched by Maggy Rouff in the midseason, was the sensation of the February openings. This fabric in either wool or synthetic version was seen at almost all of the important houses. In considering the position of alpaca in the American fashion picture one is obliged, however, always to bear in mind that France likes this fabric far better than this country, where there is a tendency to regard it as "cheap looking" or "old."

The enthusiasm shown by the Paris dressmakers for prints will doubtless have an important bearing upon spring and summer styles. All of the houses used them in the usual way for day and evening frocks, and as the lining for plain coats worn with a printed dress.

Black and white, and navy and white prints, to which Paris is always partial, were omnipresent. As a rule, which, however, has many exceptions, mono-color prints were used for day and multicolor prints for evening. Molyneux, famous for his lovely "imprimés," used charming flower effects on a crinkled crepe ground. Mainbocher showed a civet cat print, also on crinkled crepe, which has been much discussed. Maggy Rouff sponsored chintz designs on crepe. Both Schiaparelli and Mainbocher featured dots. Lucile Paray showed a par-

d at Paris Openings

By Marie Stark
Style Consultant



10. Chenille-run organdie.
11. Refined form of cotton canvas used by Ardense; preferred version is in plain white.
12. Black and white prints were outstanding.
13. Wool in light cross-bar effect.
14. Daisy pattern prints were thought well of.
15. Interwoven cellophane strips give life to this wool fabric.
16. Looks knitted, though woven; Duplan's Crepe Barcord in line with French mode.
17. American version of French alpaca (Foreman).
18. Paisley effects are good. This is an American version from Onondaga.

ticularly attractive paisley pattern in shades of gray, well arranged and colored. Chanel, as usual, did something different. Fringe, interlaced ribbons and rosettes furnished the motifs for some designs typically "Chanel" in their neat chic. Lanvin showed mosaic prints. Molyneux featured checks. Lucile Paray showed inch-sized checks. Japanese influence in prints was still in evidence.

In plain materials much classic crepe was still used, especially by such houses as Mainbocher, Lelong, and Augustabernard. Armures and faconné fabrics were also seen. Heavy sheers in a great variety of plain and novelty weaves were seen everywhere. This fabric seems to have become a fixture, the only new development being the number of novelty weaves that French fabric makers have created and the couturiers adopted. Morocain also figured in many models, sometimes as the basis of prints. Satin for evening wear was endorsed. Metal effects were sufficiently in evidence to warrant the forecast that they will be important next fall and winter.

Fabrics in which cellophane in fine strips was combined with synthetic yarn, wool or cotton attracted much attention. Several examples of this species of novelty are shown among the photographs presented above.

In wools, as stated before, alpaca was the outstanding fabric, used by Vionnet, Mainbocher, Lucile Paray, Lanvin and many other houses. Sheer woolens were also much to the fore, as in recent seasons. Jerseys were again endorsed by such houses as Molyneux, Chanel and Schiaparelli . . . and, of course, there were tweeds.

Cottons and linens were fashioned into day and evening clothes of exceeding smartness. Woven novelties, sometimes tweed effects, were noticeable in day things, and embroidered and jacquard cottons scored at night. Chanel featured metal-embroidered organdie; gingham-patterned organdie was sponsored by Mainbocher.

In colors, blue ranked first, the shades ranging from navy, through Patou's much paragraphed sapphire, to Schiaparelli's lovely pale hyacinth. Black and black and white were outstanding. Brown was an important color. The amount of gray employed came as rather a surprise, Schiaparelli sponsoring a soft warm tone which she called "eucalyptus." Chamois was another tone endorsed by this house. Many houses used yellow green. Chanel made good use of a strong crude green tone. Reds were important at many of the houses, Vionnet giving preference to blue reds and Lanvin to light yellowish tones. Purple was seen chez Patou, and Vionnet used dark amethyst most effectively. Lelong, as is his habit, did fetching thing with pastels; and evening gowns of distinguished character appeared in ivory and pale gray in Mainbocher's collection. Yellow of a warm strong tone was featured by Patou for sports.

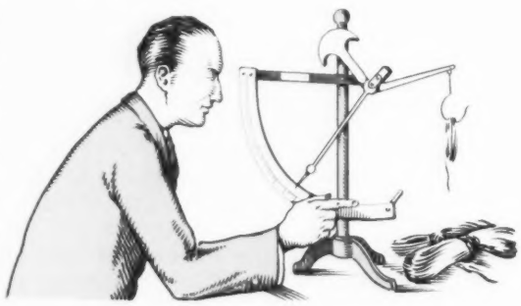
FACTORS FOR RAYON, COTTON, AND SILK SIMPLIFY THE CALCULATION OF

Yarn Weight

By Thomas Watkins

TO MAKE certain that they are paying for yarn and not for water, many mills make it a practice to test every lot received from the manufacturer or throwster. In order to simplify the calculation for determining the net weight of yarn, the writer has worked out the accompanying table. With aid of this table, it is possible for one to figure quickly the net weight of rayon, acetate, cotton, or silk yarns.

The following example will show the manner in which the table is used: Assume that the weaver receives a lot of viscose, which is billed to him as 300 lb. net weight. He finds that the actual weight received is 301 lb. By test, the moisture content of the lot is found to be 10.6%, which is equal to 11.9% regain.



The weaver now multiplies the weight received by the viscose factor for 10.6% moisture content to determine the net weight of the yarn at standard regain; that is, 301 x .992 = 298.6 lb. This indicates that although the yarn received weighs 301 lb., the actual amount which should be billed is 298.6 lb. In other words, the weaver is being billed for 1.4 lb. of water for which he should not have to pay.

The following calculation shows the way in which the conversion factors given in the table were derived. Assume that we have 1 lb. of viscose with a moisture content of 9%.

1.000 lb. = Weight of yarn received
0.090 lb. = Moisture content
0.910 lb. = Bone-dry weight
×1.100 = 1 + 11% (Standard regain for viscose)
1.0101 lb. = Weight of bone-dry yarn plus 11% regain

Thus, the factor for viscose or any other yarn having a standard regain of 11% and a moisture content of 9% is (carried to three decimals) 1.010. In working out the factors, the following were taken as the standard regains for various yarns: Viscose, cuprammonium, nitrocellulose, and raw silk, 11%; cellulose acetate, 6½%; cotton (mercerized), 8½%.

Moisture Content Per Cent	*Regain Per Cent*	*Viscose Cuprammonium Nitrocellulose Raw Silk Factor*	*Cotton Factor*	*Cellulose Acetate Factor*
3.0	3.1	1.077	1.052	1.033
3.1	3.2	1.076	1.051	1.032
3.2	3.3	1.074	1.050	1.031
3.3	3.4	1.073	1.049	1.030
3.4	3.5	1.072	1.048	1.029
3.5	3.6	1.071	1.047	1.028
3.6	3.7	1.070	1.046	1.027
3.7	3.8	1.069	1.045	1.026
3.8	4.0	1.068	1.044	1.025
3.9	4.1	1.067	1.043	1.023
4.0	4.2	1.066	1.042	1.022
4.1	4.3	1.065	1.041	1.021
4.2	4.4	1.063	1.039	1.020
4.3	4.5	1.062	1.038	1.019
4.4	4.6	1.061	1.037	1.018
4.5	4.7	1.060	1.036	1.017
4.6	4.8	1.059	1.035	1.016
4.7	4.9	1.058	1.034	1.015
4.8	5.0	1.057	1.033	1.014
4.9	5.2	1.056	1.032	1.013
5.0	5.3	1.055	1.031	1.012
5.1	5.4	1.053	1.030	1.011
5.2	5.5	1.052	1.029	1.010
5.3	5.6	1.051	1.027	1.009
5.4	5.7	1.050	1.026	1.007
5.5	5.8	1.049	1.025	1.006
5.6	5.9	1.048	1.024	1.005
5.7	6.0	1.047	1.023	1.004
5.8	6.2	1.046	1.022	1.003
5.9	6.3	1.044	1.021	1.002
6.0	6.4	1.043	1.020	1.001
6.1	6.5	1.042	1.019	1.000
6.2	6.6	1.041	1.018	.999
6.3	6.7	1.040	1.017	.998
6.4	6.8	1.039	1.016	.997
6.5	6.9	1.038	1.014	.996
6.6	7.0	1.037	1.013	.995
6.7	7.2	1.036	1.012	.994
6.8	7.3	1.035	1.011	.993
6.9	7.4	1.033	1.010	.992
7.0	7.5	1.032	1.009	.990
7.1	7.6	1.031	1.008	.989
7.2	7.8	1.030	1.007	.988
7.3	7.9	1.029	1.006	.987
7.4	8.0	1.028	1.005	.986
7.5	8.1	1.027	1.004	.985
7.6	8.2	1.026	1.003	.984
7.7	8.3	1.025	1.001	.983
7.8	8.5	1.023	1.000	.982
7.9	8.6	1.022	.999	.981
8.0	8.7	1.021	.998	
8.1	8.8	1.020	.997	
8.2	8.9	1.019	.996	
8.3	9.0	1.018	.995	
8.4	9.2	1.017	.994	
8.5	9.3	1.016	.993	
8.6	9.4	1.015	.992	
8.7	9.5	1.013	.991	
8.8	9.6	1.012	.990	
8.9	9.8	1.011	.988	
9.0	9.9	1.010	.987	
9.1	10.0	1.009	.986	
9.2	10.1	1.008	.985	
9.3	10.3	1.007	.984	
9.4	10.4	1.006	.983	
9.5	10.5	1.005	.982	
9.6	10.6	1.003	.981	
9.7	10.7	1.002	.980	
9.8	10.9	1.001	.979	
9.9	11.0	1.000	.978	
10.0	11.1	.999	.977	
10.1	11.2	.998		
10.2	11.4	.997		
10.3	11.5	.996		
10.4	11.6	.995		
10.5	11.7	.993		
10.6	11.9	.992		
10.7	12.0	.991		
10.8	12.1	.990		
10.9	12.2	.989		
11.0	12.4	.988		
11.1	12.5	.987		
11.2	12.6	.986		
11.3	12.7	.985		
11.4	12.9	.983		
11.5	13.0	.982		
11.6	13.1	.981		
11.7	13.3	.980		
11.8	13.4	.979		
11.9	13.5	.978		
12.0	13.6	.977		
12.1	13.8	.976		
12.2	13.9	.975		
12.3	14.0	.973		
12.4	14.2	.972		
12.5	14.3	.971		
12.6	14.4	.970		
12.7	14.5	.969		
12.8	14.7	.968		
12.9	14.8	.967		

Factors for use in calculating net weight of yarn at standard regain.

Textile World Analyst

OUTLOOK CONTINUES FAVORABLE FOR HEALTHY TEXTILE YEAR

ALTHOUGH it is still too early to pass anything like a conclusive judgment on 1934's probabilities, trends to date strengthen the conviction which we expressed in the Annual Number: namely, that the year in textiles would be a healthy one, with poundage volume somewhere between 1932 and 1933, but with a greater uniformity in both operations and profit possibilities over the twelve months than featured last year.

Complete February statistics on consumption of raw material are not yet available. Those for January show total textile mill activity 37% above the previous month (December, 1933) and 7% above the corresponding month last year (January, 1933). The sharp pick-up was to be expected, as December was a month of low mill activity due to organized curtailment programs.

The prices of raw wool and of manufactured products varied only slightly during February and TEXTILE WORLD's price index numbers for this group remain the same as for January. In the cotton group the outstanding feature is that the cotton yarn index dropped in the face of rising prices for raw cotton and cloth. The reason for the change is that, in late January, yarn prices, particularly the finer counts of carded, took a considerable drop, which, however, did not affect the January index greatly. The changed level shows up in February. Since last August the yarn index has run considerably ahead of the cloth index and this disparity has now apparently been corrected. Raw silk fluctuated within a range of about 15c. and ended the month with a gain of two points in the index number.

Reference to Tables I and II will show that the cloth-yarn relationship in cotton manufactures, referred to above, is also revealed in the figures on manufacturing margins. The average margin on carded cotton fabrics strengthened from 18.4c. in January to 19.2c. in February, while the yarn margin dropped from 18.3c. to 16.5c. However, this was due to the situation outlined above. Incidentally, the cloth market behaved beautifully during February, as Table I demonstrates. Margins fluctuated within an extremely narrow range.

During last month, an authority who follows price and cost trends in cotton manufacture very closely wrote us as follows: "Manufacturing margins have improved considerably, as you realize, since the first of the year. The low cost mills are now making some profit. Those mills which were long on cotton or cloth have had substantial inventory profits which may lead some outside the industry, who see only the final profit figure, to think that present margins are adequate. The facts are, as you probably know, that manufacturing margins are still very narrow in most cotton or cotton and rayon mixed goods. The general situation is much better than it was 60 days ago, and seems still to be improving. There is, however, plenty of room for improvement."

Textile manufacturers can find encouragement not only from the outlook in their own field but from the improved tone in general business and industry. In the midst of a continued national debate on policies, theories, and other academic subjects, recovery itself has been making actual headway. There are still a great many "ifs" in the situation; there is still a critical amount of unemployment; there is still ground for worry as to the possibility of a reaction next summer and fall. Just now, however, the movement is in the right direction. Possibly, with a little less disposition to quibble about what started it that way business men might be able to sustain that progress.

TABLE I. CARDED FABRIC MARGIN

Date	Margin in cents	Date	Margin in cents
July, 1931.....	15.3	May, 1933.....	15.6
October, 1931..	13.3	June, 1933.....	20.6
January, 1932..	12.1	July, 1933.....	23.4
June, 1932.....	9.5	August, 1933...	21.4
July, 1932.....	9.1	September, 1933	19.5
August, 1932..	11.1	October, 1933...	19.1
September, 1932	13.0	November, 1933	17.7
October, 1932..	12.6	December, 1933	17.6
November, 1932	10.7	January, 1934..	18.4
December, 1932	10.6	February, 1934	19.1
January, 1933..	10.4	Feb. 7.....	18.7
February, 1933.	10.1	Feb. 14.....	19.2
March, 1933...	10.2	Feb. 21.....	19.2
April, 1933.....	11.4	Feb. 28.....	19.2

TABLE II. CARDED YARN MARGIN

Date	Margin in cents	Date	Margin in cents
July, 1931.....	12.6	May, 1933.....	12.3
October, 1931..	12.7	June, 1933.....	15.4
January, 1932..	10.9	July, 1933.....	23.2
June, 1932.....	9.9	August, 1933...	23.5
July, 1932.....	9.6	September, 1933	21.3
August, 1932...	9.7	October, 1933...	20.0
September,1932	12.8	November, 1933	18.4
October, 1932..	12.3	December, 1933	18.5
November,1932	11.3	January, 1934..	18.3
December, 1932	10.9	February, 1934	16.5
January, 1933..	10.2	Feb. 7.....	16.0
February, 1933.	9.4	Feb. 14.....	16.3
March, 1933....	9.8	Feb. 21.....	16.8
April, 1933.....	10.1	Feb. 28.....	17.1

▼ ▼ ▼

Textile World's Price Index Numbers

Date	Cotton Index Numbers: Cotton	Yarns	Gray	Colored	Wool Index Numbers: Wool	Tops	Yarns	Cloth	Silk Index: Raw Silk
July 31, 1914..	100	100	100	100	100	100	100	100	100
1925.....	187	188	189	176	223	229	224	233	143
1926.....	140	155	157	149	184	189	179	207	136
1927.....	140	153	159	153	181	184	187	195	119
1928.....	160	162	162	166	199	202	199	197	110
1929.....	153	144	145	167	176	179	192	211	108
1930.....	108	125	123	144	127	139	161	202	179
1931.....	68	93	92	119	99	112	134	161	54
1932.....	51	76	73	100	78	97	115	128	34
Jan. 1933.....	50	72	67	100	76	85	105	125	29
Feb. 1933.....	48	68	65	95	75	83	102	125	26
Mar. 1933.....	49	70	66	96	75	84	102	125	26
Apr. 1933.....	56	74	72	97	78	90	104	125	29
May 1933.....	69	93	94	101	104	113	116	169	34
June 1933.....	76	109	117	112	122	139	135	192	47
July 1933.....	86	138	135	131	134	153	156	201	50
Aug. 1933.....	110	170	151	147	136	157	159	217	41
Sept. 1933	111	156	149	147	144	177	165	222	41
Oct. 1933.....	110	152	141	144	148	179	175	222	36
Nov. 1933....	114	146	132	144	150	179	175	222	33
Dec. 1933	115	146	131	144	152	179	177	222	32
Jan. 1934.....	124	151	139	144	153	180	181	222	32
Feb. 1934	132	148	146	144	153	180	181	222	34

Note: All cotton indices since Aug. 1 include processing tax.

Overseers'

Announcement

Beginning with the April issue, this department will give place on alternate months to a new feature, "Kinks for Overseers," presenting practical suggestions for meeting the many minor problems which arise in textile mill operation. Readers are cordially invited to contribute to this new department, and published kinks will be paid for without regard to length. Additional payment, however, will be made for diagrams or photographs.

THIS DEPARTMENT—

offers a new subject for discussion each month and gives readers' comments on problems introduced in previous issues. The subject opened in January is closed and summary of contributed ideas is given on opposite page. Overseers and others are invited to discuss the subject presented under the heading "The Matter of Handling Complaints," and other questions brought up in the super's talks. Letters accepted and published will be paid for without regard to length. Brevity is desirable.

▼

THE MATTER OF HANDLING

"I'M sorry to say that this mill is not perfect," said Superintendent Chase with a grin as the meeting opened, "and we do have complaints from our customers from time to time."

"Lest you misunderstand me," he continued, "I am not in a combative mood. We have all done a good job here and I am not complaining at all. The point I want to raise is the manner in which we should deal with any kicks we do happen to get. I wouldn't be superintendent if I weren't in a position to judge in a general way where the error was made, if the complaint is justified, but that is beside the point. The question I want to ask is whether I should take a serious complaint up with the person I believe responsible, or whether I should throw the matter before you all as a group and let you battle it out."

"I think it would be a very bad procedure if you took a serious complaint from a customer and placed it before a meeting of this sort," Bill spoke up. "You undoubtedly have a sound opinion as to the overseer responsible for a given defect in quality and I think that the best plan is to take it up with the man in question directly. If you bring it in to all of us, some one of us is bound to be proven the goat and the poor goat is going to feel pretty badly about having his error shown up before everyone. It is bad enough to realize that you have made a bull without having the news broadcast. I don't think that it is fair to show a man up in such a fashion."

"Just for a change," said Pete with a smile, "I am going to

Mistakes of Overseers and Superintendents

Editor, Overseers' Round-Table:

It seems to me that the problem of how to deal with an overseer or superintendent who has made a mistake is strictly up to the management for analysis and correction.

The man in question has been slipping and it is up to management to find out why. If he is not worth-while, discharge is a simple matter. Apparently, however, up to this time he has been satisfactory and a heart-to-heart talk is in order. Perhaps the man is not well; he may need glasses; his home problems may be bothering; these or any one of a number of other reasons may be the cause of his inefficiency.

Here is an obligation on the part of the man's superiors; correction lies wholly with them.

As Robert Burns has so aptly said: "Would that we could see ourselves as others see us."

J. M. MURPHY
Walter A. Goldsmith Co.

Editor, Overseers' Round-Table:

The question of whether a foreman or superior officer in a plant or mill should be excused for his mistakes opens an argument of unlimited discussion, both pro and con, and is a subject that could hardly be boiled down to a definite rule or decision that would favorably apply to all cases.

I think any time a man in an official or any other capacity makes a mistake he should receive some kind of reprimand. I don't mean by that that you should be continually bawling out a fellow for this and that; far from it. In the first place, when a man is selected for an official job much care should be used in the selection. A man should be judged by his merits over a long period of time.

The job of dealing out reprimands requires quite a bit of psychology and diplomacy, if the greatest results are to be derived. I think the idea of deducting any part of a man's pay for an error, except in a very few isolated cases, is all wrong. Only a capable and efficient man deserves an official's position. A man with these qualities will always give his best, and put careful and conscientious thought into the execution of every detail. If a man does this, and is a capable man for the position in the first place, then he will show only a minimum of errors, and should not be docked any money. When a man gets to where he cannot do the above he should be removed and some other deserving man given a chance.

J. P. EVANS

Editor, Overseers' Round-Table:

The attitude of an overseer toward his workers has much to do with the efficient operation of his department. In a like manner, the attitude of the superintendent has a considerable bearing on the success or failure of his overseers.

Discipline or punishment, as such, by a superintendent for the failure of an overseer to measure up to what is expected of him is hardly called for, but a superintendent can do a great deal for his overseers with kindly, constructive criticism.

An ill-natured, nagging, fault-finding superintendent keeps his overseers in a constant state of nervous apprehension, dreading every contact with him. No overseer can be at his best under these conditions.

Round-Table

COMPLAINTS

disagree with Bill. There are very few defects in merchandise that can be pinned down absolutely to one individual overseer. If you go around to the individual you think responsible there is always the temptation for him to pass the buck. This is only human despite the fact that we all hate it. On the other hand, if you bring a complaint in here to all of us we have a chance to talk the matter over and to bring out all the various points in a nice way. No one is going to try and pass the buck when we are all together, but, even more important, I think that such discussions would be very helpful. Even though another overseer may be primarily to blame, I may find out that if I had done certain things differently in my department he would have had less of a chance to turn out a defect. Bill brings up the point that it is cruel to put the goat on the spot, so to speak, but I think that the plan is fair to all concerned, since each may be the goat in turn. We all have a lot of respect for each other and I think that we are all men enough not to feel hurt if we happen to be the one in error, or to gloat over another who has made a mistake. Further, as I said before, it is seldom that there is one man to blame entirely and a mutual discussion is bound to be helpful."

How do *you* think that complaints from customers about defective merchandise should be handled?

Let the superintendent, who feels that his overseers are making too many mistakes, first try a little self analysis, and if he is satisfied that his own conduct is right he may then point out the overseer's mistakes to him and offer the needed constructive criticism.

"OVERSEER"

Editor, Overseers' Round-Table:

You will never find a doctor taking his own medicine or bootlegger drinking his own stuff, but if a mill still clings to the antiquated idea of fines, the overseer or superintendent should be administered the same medicine, only he should be dealt with more severely.

I do not exactly agree with Bill that "overseers should be treated in just about the same way as operatives." The overseer is being paid for his knowledge and responsibility and if he makes a costly mistake he should be fined at least double the amount an operative would be under a similar circumstance. An overseer who is in the habit of making mistakes should be shown the way out, as it sets a bad example to the workers for the superintendent or overseer to be continually making mistakes.

G. G. H.

Editor, Overseers' Round-Table:

You know, Mr. Editor, your question this month puts me in a sort of quandary. Some wise men say "we profit through mistakes," and other wise men say "mistakes are costly; guard against them." I believe you've put us on the spot with your question.

Being a superior officer having to deal with an overseer who has committed a mistake, before bringing him to task I would investigate how the mistake was made and the circumstances surrounding it. An overseer is human and it is human to err. By this I do not mean that I would overlook the mistake, for, if it was made through carelessness or faulty habits, I would demand that it should not happen again.

In nearly all cases a man rises to the position of overseer by acquiring a certain something that stamps him above his fellow workers. Naturally he is liable to make mistakes, but he should realize this and find ways and means to stop them before any real damage is done. It costs the mill much more in time and money when an overseer makes a mistake than when an ordinary worker errs. I, for one, would expect to be brought up on the carpet, have an explanation demanded and take my medicine, for in these days, when every little move counts, an overseer must keep his mistakes to the minimum.

By concentrating and systematizing his problems, and keeping his eyes open, an overseer will find that his job is much easier. The chances of making mistakes will be reduced because his mind will then be in an orderly condition to receive and execute orders.

H. F. HORN
Royal Weaving Co.

Editor, Overseers' Round-Table:

I believe that the most serious mistakes of an overseer or superintendent are often caused by circumstances that are temporarily out of their control. The regular routine work of a mill should not allow much chance for serious mistakes, but when they occur they may rightly call for discipline, after allowance has been made for unusual conditions.

Probably as much trouble as from any other reason comes in a mill where the superintendent is a "one department" man and where the rest of the mill has to fall in line to make a showing for this one department. This is often a cause of friction and of mistakes not chargeable to other overseers. I believe this angle of the topic could be discussed with profit.

An overseer who never makes mistakes is often the forgotten man, while the one who is quick with the alibi is the one who is listened to, despite the fact that he generally makes the most mistakes. The overseer who realizes his mistakes is the one who gains by his own experience and that of others.

F. J. R.

SUMMARY

MISTAKES OF OVERSEERS AND SUPERINTENDENTS. *Opinion was practically unanimous that the best way for a superior officer to deal with an overseer or superintendent who had made a serious mistake was to adminster nothing more than a mild reprimand. This decision was based on the premise that a good overseer or superintendent would himself realize the seriousness of the mistake and use every possible care to prevent a recurrence. If the overseer did not respond to such treatment, and continued to show evidence of carelessness, it was agreed that strong disciplinary measures would not be effective anyway and that the best move in such a case was to secure a new man. No votes whatever were cast in favor of any system of fines.*

QUESTIONS AND ANSWERS

Yarn Yield from Top

Technical Editor:

What is considered a normal yarn yield from top in a mill spinning 2/28s, 56s, colored warp and 1/18s, 56s, colored filling in lots averaging 1,000 lb. each? We of course expect a greater yield from filling than warp. Furthermore, what is considered a normal yield on 2/30s, 62s, white warp yarn in lots averaging 1,000 lb? These are both spun on a sales-yarn basis, moisture and oil contents being held as far as possible to the limits of trade practice in the United States. (8072)

The yield of yarn from top is dependent upon many factors, which are, however, separable into three groups—namely, material, machines, and men. Both the yield and the evenness of the yarn are dependent upon the quality, the blend, and the average staple of the top. The machines available limit the ultimate evenness of the yarn, thus having an important bearing upon the "spin." The ability of the man in charge of yarn manufacture and the efficiency of the operatives whom he directs are together the most important of the influences upon yield of yarn from top.

The superintendent may not be able to control quality, because the purchaser, although he demands a certain quality, generally specifies the blend. When both quality and blend are controlled by others, as in this case, the superintendent is entirely dependent upon his skill—the art he uses in determining drawing layout, ratch settings, twist, and speeds—and upon the skill of his overseers, section hands, and frame tenders.

Considering these facts, the normal yield of yarn from top cannot be a fixed standard. Even in mills where a standard is assumed, results are many times below it.

Experience in both white and colored yarns warrants us in expecting results as follows from other than limit spins:

Yarn	Yield
White warp	91 to 92%
White filling	92%
Colored warp	90 to 92%
Colored filling	90 to 92%

More spinning waste must be expected from ring-spun than from cap-spun yarns. For limit spins, it is impossible to forecast; the resultant yield may be as low as 85 to 90%.

For your counts we should expect the following:

56s, 2/28s, colored warp yarn	90 to 92%
56s, 1/18s, colored filling yarn	90 to 92%
62s, 2/30s, white warp yarn	92%

Many mills figure top required as follows: Yarn x 1.1 = Top in pounds. This custom is followed for both white and colored lots. Small lots—less than 100 lb.—are given a larger margin. No firm having yarn spun on a commission business can demand a fixed yield—unless set ridiculously low—from any spinner, if the spinner has not agreed to produce so much yarn from so much top. We know of an instance where a firm having yarn spun on commission, 2/28s, 1/4-blood (S.A. and N.Z. crossbreds) received yields as follows in its two mills, which differed considerably in the up-to-dateness of their

equipment: Mill *A*, 87 to 88% yield: Mill *B*, 91 to 92% yield. In the Mill *B* both spinning and twisting wastes were extremely low.

Generally a visit to the mill, where conditions can be studied, will reveal the true reasons why yield of yarn from top is not satisfactory.

[As usual, the above reply was sent to the inquirer by mail in advance of publication. We have received the following comments from him: "I thought it might interest you to know that we expect the following yields:

"2/28s, 56s, colored warp.....	92%
"1/18s, 56s, colored filling.....	94%
"2/30s, 62s, white	93%
"White filling	94%"]

▼

Slugs in Ribbon

Technical Editor:

We are enclosing a sample of silk and cotton ribbon which is covered with spots or slugs. We should like to have your opinion as to what these are composed of and where the trouble originated. (8088)

The foreign particles in the samples were, without a doubt, picked up during the process of weaving. They could not have been picked up during the process of plying the filling yarn, because they invariably appear on the outer surface of the filling threads. If they had been picked up in the plying, the chances are that they would have been thrown off again, either when the filling was wound on the quills, or during the process of weaving as the yarn contacted the back pad, the glass pitons of the side springs, or the eye in the nose of the shuttle. The foreign particles might be fly waste which was blown from some nearby loom.

▼

Rayon Shiners

Technical Editor:

I am sending you enclosed a sample of 2/2 twill of the following construction:

Reed: 60/2/3, 20/22-denier, yellow Italian.

Filling: 104 picks, 10-thread, 13/15-denier Japan 2½ turns.

When looking at this sample you will notice shiny picks. They are not running all the way across the piece and they do not appear evenly throughout the cut. They appear only in certain places. What do you suppose causes this defect? We are running this thread through cleaners on the quilling machine. The defect cannot be seen in the gray goods off loom. (8067)

In the places where these defects are seen, the filling is strained severely and also the count does not show its correct denier. It seems to us that most of the trouble is due to lack of proper tensioning in the shuttle. Filling of this nature must have a free and easy tension, as otherwise it will be strained, thereby causing shiners. When the filling comes off the quill with a jerky movement, it causes one of the fine threads to pull apart. We also suggest that you inspect each quiller spindle and see that the bobbins rotate freely. Whether or not they are doing so can be easily determined by watching the guides and related parts.

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Rayon Twist Terminology

Technical Editor:

Can you kindly give me the meaning of the terms used in rayon twisting in regard to ends used in making 1-3, 2-3, and 3-3 twists out of 100- and 150-denier rayons? Also the procedure followed in making Schiffli as regards turns first and second time and the meaning of Schiffli turns 2-2, 3-2, 3-3, or 6-3? I have never run rayon twists of this kind and, before doing it, would like to get some information on it. (8060)

The terms 1-3, 2-3, and 3-3, as used in rayon twisting, mean that in the first case there are three single ends twisted together. In the second case, two ends are twisted together, and then three of these double ends are plied together. In the third case, three ends are twisted together and then three of these are twisted in a cable. With this explanation, you can readily see that the first number means the number of ends in one strand and that the second number means the number of strands to be twisted together for the finished yarn.

In making 2-2 Schiffli twist, five turns are inserted counter-clockwise, making a total of 8 turns, as there are three turns in this direction already in the yarn. The second twist consists of 8 turns in the two-ply in the opposite direction.

These twists hold true generally for 3-2 and 3-3 Schiffli. In making 6-3, there is considerable variation, and often 4 turns are given in the second twist. A considerable quantity of Schiffli yarn is composed of two ends of 150-denier, twisted nine turns and plied seven turns in the opposite direction. Delivery of such yarn is made in skeins.

To insure accuracy, we suggest a careful analysis of your customer's sample so that you may duplicate the yarns he has been buying. If no sample is available, submit one for his approval.

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Holes in Hosiery

Technical Editor:

We wish to thank you for the report on the hose which you sent us recently. (Question and Answer 8047, TEXTILE WORLD, *February, 1934.) We immediately made a search for insects which might be causing the holes in our stockings. We finally found the two specimens which we are sending you under separate cover. Also we are sending two of our stockings in the gray showing the type of holes we have been getting. We shall greatly appreciate it if you will examine these specimens and let us know whether in your opinion they*

QUESTIONS AND ANSWERS

are the ones which are causing the trouble. If so, we should like to know what material will kill them. (8061).

We find that the specimens are larvae of the black carpet beetle. The larvae were dead on reaching us, and we are rather of the opinion that they were when you found them. However, magnification of fifty diameters brings out their characteristics to a point enabling us to make identification without question. Our reason for believing that the bugs were dead when found is due to the fact that the black carpet beetle makes its appearance in the spring and disappears in the middle of summer. Accordingly, we are of the opinion that damaged goods have been in storage for quite some time and that the damage has not been done recently.

If the trouble experienced is of a serious nature—and we consider damage of even a few pairs of hosiery by the carpet beetle or similar insects as being serious, as they rapidly multiply and can do great harm in a short while—we advise immediate and thorough action to the end of eradicating the pest. All bins, shelves, walls, floors, and other possible hiding places for harboring the insects should be thoroughly investigated. There are many effective remedies for destruction of the larvae and the beetle in the shape of fumes and sprays which will do very effective work when properly applied. We advise you to take up the matter with the U. S. Department of Agriculture, Bureau of Entomology, Department Stored Products Insect Investigations, Washington, D. C., sending this department additional specimens of insects, if possible, and asking for bulletins and other information regarding the origin, propagation, and control of such insects.

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Defect in Bleached Garment

Technical Editor:

We are enclosing a white cotton garment which has been in stock since last summer. You will note that the color has changed and that in many cases the fabric is very weak. Will you kindly make an examination of the fabric for us and, if possible, advise us what caused the fabric to change color and the cloth to be weak? (8089)

As you gave no details as to the method you used for bleaching this cloth, we can only suggest possible reasons for the damage. The change of color may be due to one of two causes. If you blued your cloth, the bluing has not held in. Or your preliminary treatments, previous to the actual bleaching, have not been thorough. That is, you have not obtained a good, clear white bottom, on which to have your bleach take hold to its full advantage. Cloth, to hold a good white color for a considerable length of time, must have a very good bottom before bleaching.

The three major causes for weakness of knitted cloth are as follows: a too strong preliminary treatment; over-bleaching of the cloth; failure to wash out of the cloth all chemicals used in the process. Any one or all of these conditions will cause the finished cloth to exhibit a weakness as is shown in the garment sent for examination.

Necktie Lining Curls

Technical Editor:

Inclosed are two strips of necktie linings, and we should like to have your opinion as to what causes the cupping or rolling when one pulls on the ends of the strip. I might add that these two are of the same construction, and also that I have seen others of the same construction that remain perfectly flat when pulled on the ends of the lining. (8078)

The samples of low-grade tie lining inclosed are composed of two-ply cotton warp and wool filling. Cupping or rolling is to be expected in such constructions. You might try a higher twist in the cotton warp to resist its bending, but it is doubtful that this expedient would prove very effective when the cloth is cut on the bias.

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Waterproofing Metallines

Technical Editor:

We are interested in obtaining a waterproof finish on metallines similar to the enclosed sample. Will you kindly tell us how this is done. This sample is not waterproof. (8077)

A satisfactory method for finishing metallines is to waterproof and size the goods in one operation with a lacquer. The fabrics can be treated with a lacquer simply by saturating the goods in a box holding the lacquer, running them through squeeze rolls, and festooning them to permit the volatile solvent to escape. The particular type of lacquer ordinarily employed for this type of work contains some of the less inflammable and less odoriferous solvents and thinners. Other lacquers, such as clear lacquers used in spray guns, would be satisfactory; and practically any degree of stiffness or flexibility can be obtained by regulating the amount of thinner and solids. After the goods have been treated and the solvent has evaporated, the fabric should be given a good calendering to give it the proper flat, smooth finish.

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Hosiery Uneven in Length

Technical Editor:

In the manufacture of full-fashioned stockings, we have had a great deal of trouble with "shorts" and "longs." For a 42-gage, four-thread stocking with a total of 1550 courses, we have set a limit of 32½ in. from the picot at the top of the double welts to the loose course at the end of the heel portion. The stockings coming off the machines on a dry day will be about 29 in. long. On a rainy day they will be from 33 in. to 34 in. long.

The knitters and foreman state that this variation is due entirely to the weather, although all our silk is conditioned before coming to the machine and is kept in moisture boxes behind the machines while being used. They also assert that the machines cannot be adjusted to control the length of the stockings within approximately 1 in. either way, regardless of the kind of weather. They contend that if the full number of courses (1550) are put into the stockings, they will all be the same size after finishing, notwithstanding the fact that the lengths may vary from 29 in. to 34 in. at the time of coming off the machines. Any advice you can give us on this matter will be greatly appreciated. (8046)

We agree with the knitters and foreman that varying atmospheric conditions can and will have some effect, and even marked effect, on the length of full-fashioned hosiery; but we cannot accept the argument that the weather can be held responsible for variations ranging from 29 to 34 in. Neither can we accept the assertion that a uniform number of courses knit up in such variation will afford uniform finished lengths.

On the supposition that you do not have humidity control in your plant, we shall offer some suggestions leading to a better control of lengths. First, we will say that we cannot conceive of a wide enough variation in the moisture condition of the silk to cause a variation of 5 in. in different patterns knit under different humidity conditions. While we admit that moisture is an important factor, we believe you will have to consider other factors than moisture. Probably one of the most important is the tension on the cone winder.

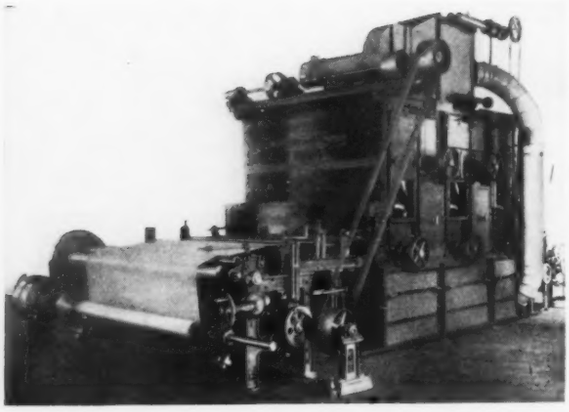
The condition of silk cones should be as uniform as possible. A tight or hard-wound cone will knit an entirely different length of stocking from a loose, soft-wound cone. We recommend that cones be wound as soft as possible.

It is, of course, important to check up on the individual heads and tensions of the knitting machine. Where an individual head is found to be knitting loose, the cone should be exchanged with one that is knitting tight to see if the different conditions follow the cones after they are changed.

It is our opinion that this kind of follow-up and close attention to moistening boxes and wicks will enable you to reduce the uneven length to a satisfactory minimum whether the atmosphere is humid or dry. At the same time, we admit that more uniform lengths can be produced in a humidified room.

As to the question of uniform courses controlling finished lengths, we point out these facts. A stocking 34 in. long carrying 1550 courses shows an average of 45 plus per inch, while a stocking 29 in. long with the same number of courses shows an average of 53 plus per inch. We admit that reasonable variation on account of weather condition can be reduced in the final finish to reasonably uniform length. We cannot agree, however, that hosiery with variations as wide as from 45 to 53 courses per inch can be finished satisfactorily to a uniform length.

NEW MACHINERY



Rayon Slasher

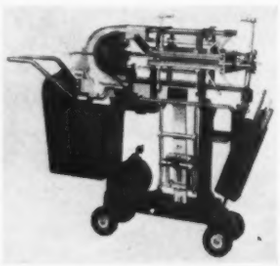
The Zell rayon slasher, an entirely new type of equipment which eliminates the use of heated drums and permits drying of the warps with hot-air currents at a low degree of heat, has been announced recently by American Obermaier Corp., 11-20 49th Ave., Long Island City, N. Y. Among the advantages cited for the new slasher is the fact that the yarn maintains its round shape, thus giving a finished fabric of livelier appearance than is obtained from yarn which has been flattened during the sizing operation. In addition, it is stated that the new slasher produces a sized warp free from tension variations and with a higher breaking strength.

While full details regarding the construction of the Zell slasher have not yet been made public, it is believed that the most radical innovation is in the design of the drying system. This consists of a drying chamber which incloses a series of hard rubber skeletons over which the warp passes. Inside the skeletons are revolving fans which throw a uniform current of hot air against the entire width of the warp. The hot air is produced in a heating apparatus placed on the roof of the drying chamber. If the machine is stopped for any reason, the heat is shut off immediately so as to prevent "baking" of the yarn. Both fans and skeletons run in anti-friction bearings located outside the dry box. The chamber is insulated to prevent loss of heat.

The size box is of an improved type, indirect heated and adjustable for either light or dense warps. The machine can be operated at any one of eight speeds, the speed adjustment being effected in a few seconds by means of a hand wheel. A differential cone-belt drive permits instantaneous regulation of the warp tension. Provision has been made to prevent slipping or misplacement of the warp threads during drying. A stretch indicator enables the operator to maintain a constant stretch at all times.

Portable Warp-Tying Machine

Barber-Colman Co., Rockford, Ill., has recently brought out a new portable warp-tying machine, known as Model LS. This machine is designed for the tying-in of rayon, silk, and fine cotton warps from an end-and-end lease. While machine performance is governed largely by the number of ends per warp and the denier, it is stated that actual production of 48,000 ends per 8-hr. day has been obtained by a mill operator on average rayon warps. Entirely new mechanisms have been developed for holding and tying the yarns, and ease of handling has been considered as a most important factor. Ball-bearing, rubber-tired wheels are standard equipment; and through the extensive



use of aluminum, the weight has been greatly reduced as compared with the Model K portable machine.

Rotary Singe Roll

American Gas Furnace Co., Elizabeth, N. J., has developed a rotary singe roll of new type construction. Made of heat-resisting metal of high quality, thus insuring freedom from extreme oxidation, these singe rolls may be obtained in various lengths to suit any widths of cloth. When the demountable shell may require replacement, only about half the usual cost of a complete new singe roll will be incurred. These singe rolls are now furnished, as standard equipment, for service only in the externally heated rotary plate singers made by the American Gas Furnace Co.

Spring Jack

A new spring jack for links-and-links machines has been placed on the market recently by Queens Machine Corp., 1623 Hancock St., Brooklyn, N. Y. The jack, known as the "Zimic," is designed to keep the needles

from extending beyond the needle-bed and, therefore, to permit racking on one or both ends of the machine without danger of damaging the needles, needle-beds, or the goods. The manufacturer states that the spring attached to the jack keeps it firmly and snugly within the channel and helps in the following ways: (1) The improved jacks, when pulled out of operation do not move forward by the machine's vibration. The firm and even motion of the jacks, sliding in the channels, prevents collisions with the locks which might result in sudden shocks and thus disconnect the needle from the jack hook. This eliminates the breaking of needles or jacks. (2) When in operation, after the carriage has passed through, the jacks will not be scattered by the end locks but will stay in one line, in the center. (3) When the jacks are pulled off by the jacquard lock and hit the steel strip, they will not rebound forward. The machine, therefore, can be speeded up more rounds per minute without danger of damage. (4) The regularity of the motion of the jacks improves the uniformity of the knitted stitch. (5) The snug fit of the improved jack constantly polishes the walls of the channel and does not permit the gathering of dust.

Gas-Burning Furnace

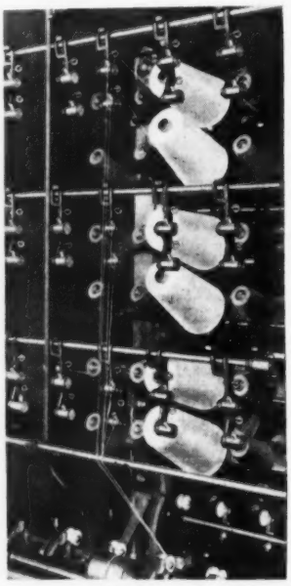
General Electric Co., Schenectady, N. Y., has announced a line of gas burning furnaces, supplementing its oil furnace placed on the market last year. The furnace is available in various sizes for commercial and small industrial applications. The gas furnace is a coordinated unit with burner, boiler, control, and all other parts enclosed in a single jacket.

Asphalt-Base Resurfacer

An asphalt-base floor-resurfacing material prepared to withstand heavy loads on steel wheels has been announced by the American Oil & Disinfectant Co., 129 East 26th St., New York. The asphalt is broken up into extremely fine particles, giving a finer emulsion that permits mixture with greater quantities than usual of cement, sand, and gravel. The amount of aggregate mixed with the asphalt base material, known as "Amolastic," determines the hardness to which it will set.

Twister Cone Creel For Over-End Draw

Saco-Lowell Shops, Boston, Mass., recently announced a special twister cone creel for over-end draw, said to be particularly adaptable for yarn of very kinky nature. The yarn passes from the cone supply package, which is firmly held by conical base, through a yarn guide and then around the knob tension. The latter is adjustable and, depending on the type of



single yarn being twisted, any amount of tension may be obtained. The hangers, which hold the yarn guides and knob tensions, are pivoted on their supporting rods so that they can be swung upward for creeling or for other purposes. This creel arrangement is said to provide any suitable tension desired and also to act as a kink remover when hard-twisted yarns are being plied.

Cloth Measuring and Examining Machine

Hermas Machine Co., Hawthorne, N. J., has announced a new cloth measuring and examining machine. The manufacturers state that by actual test, 60-yd. lengths have been measured from floor to floor in 120 seconds, including the threading up of the machine and the removing of the reel or tube. A unique drop finger measuring at-

AND PROCESSES

tachment provides accuracy in measuring. The machine is equipped with a reversing feature which will wind cloth back on to original tube or reel in either direction. The machine will take cloth on any size reel, tube, or book fold; is operated entirely from the front; and is easy to thread and adjust from one size tube or reel to another. Mounted on concealed ball-bearing casters, the machine may readily be moved about. It is equipped with variable speed drive. Optional features include table for examining and the reverse wind.

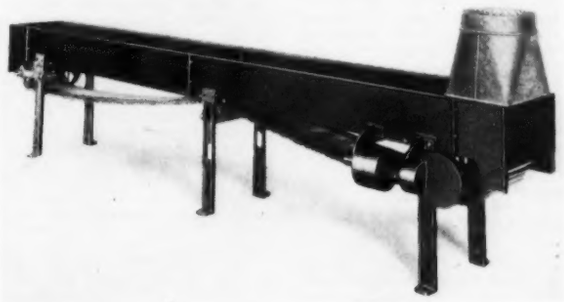
Open-Width Soaper

An open-width washer or soaper with positive tension control has been announced recently by Textile-Finishing Machinery Co., Providence, R. I. The washer can be supplied with any number of sets of squeeze or nip rolls from two to ten inclusive. A working speed range of approximately 12½ to 125 yd. per min., coupled with the tension-control feature, permits the machine to be used for a wide range of sheer and heavy fabrics.

Each pair of squeeze or nip rolls is driven by an individual adjustable-speed motor built as a unit and incorporating a speed reducer. This provides a straight-line motor drive with ample power at low speeds. This form of drive can be supplied to plants equipped with either alternating current or direct current. Control for the motors is through the medium of pushbutton pre-set attachment with speed setters conveniently located. The individual motors are synchronized through dancer-roll rheostats which are adustable according to requirements. Another feature of the new soaper is the elimination of all side shafting and gearing, with the resultant access to the wash tanks and the protection against accidents.

Steel Lattice Conveyor

Recently announced by Saco-Lowell Shops, Boston, Mass., is a redesigned lattice conveyor or feed table of much stronger construction, lighter in weight, and with smoother sides than the cast-iron type. This conveyor is constructed with steel sides, and less resistance is thus offered to the stock in its passage along the table. The mouthpiece, a new feature, is so designed that any heavy foreign material, such as pieces of bands, buckles, etc., will drop out and not be carried along with the stock. The feed table is made in sections which can be assembled into any desired length, and is available for either belt drive or individual-motor drive.

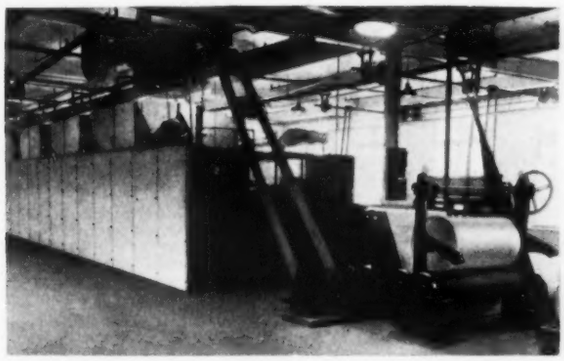


Print-Works Ager

Textile-Finishing Machinery Co., Providence, R. I., recently announced a new ager designed to handle a full range of printed goods, from sheer voiles and rayons to heavier fabrics, such as cretonnes and drapery materials. The steam chests have special machined joints and other features designed to take care of expansion due to temperature changes. The carrier rolls of the machine are arranged in a single row at the top and bottom and are of heavy brass tube construction supported in outboard self-aligning ball bearings. These machines are built in varying lengths, generally ranging from 12 to 30 ft., while the prevailing widths of equipment are from 50 to 66 in.

The ager is equipped with variable-speed drive self-contained on the outer walls of the machine. This consists of an individual motor with chain or V-belt drive mounted directly on the variable-speed mechanism. The variable-speed transmission in turn is directly connected to a totally enclosed gear-reducing unit with a continuous chain drive around the top rolls. A complete arrangement of adjustable sprockets, chain tighteners, etc., is provided. Operation of the machine proper is permitted at such speeds as to give from 1½ to 7½ min. of ageing time.

The ager is designed for the full ageing of hydrosulphite or vat printed effects and the ageing or steaming of certain types of basic, direct, and other types of printed colors. Means are provided to reduce to a minimum warpwise tension on the fabrics as they are passed through the machine.

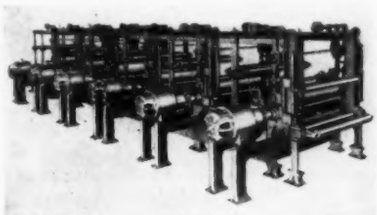


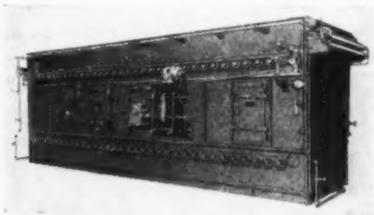
Tenter-Dryer System

Development of an improved tenter-dryer system has been announced recently by Buck Dryer Corp., Manchester, Conn. This system is designed to give high flexibility over a wide range of operating requirements and to permit close control over the finishing operation. Among the advantages cited for the new equipment are that it eliminates baking, steaming, or ageing of the goods, and enables savings in power. Features of the machine stressed by the manufacturer are the following: Tenter housing consisting of 2-in. insulated metal-clad removable panels; sectional air-circulating system consisting of self-contained diffusing units, insures uniform circulation of unusually large volumes of air with low power requirements; air uniformly applied at high velocity to both sides of the fabric and automatically providing additional drying for the selvages irrespective of width of fabric; individual motors directly connected to the fan units permit power economy when maximum volume of air is not required for drying; air temperatures and air velocities may be varied over each 10-ft. length of inclosed frame if desirable; provision can be made for applying cooling air to the fabric over the last section before leaving the housing; centrifugal fan wheels assembled on shaft mounted in dust-proof ball bearings located outside of the unit; extended-surface heating coils insure high air temperatures and economical steam consumption; fan housings and heaters are accessible and readily cleaned; air re-circulated throughout length of tenter permits installation of lint screens; and minimum head room and floor space required.

Carboy Hand Truck

Lewis-Shepard Co., Watertown, Mass., recently announced a carboy hand truck mounted on small-sized pneumatic tires. This truck enables one man to move carboys with safety, as it is an extremely easy running truck over all floor conditions. In operation, the carrying arms are spread apart by depressing the foot lever, conveniently located just over the axle. The truck is run astride the carboy with the arms underneath the side cleats. When the lower foot lever is depressed, the arms are drawn in securely against





the carboy sides by coil springs; and the operator, by bearing down on the truck handles, raises the carboy to the carrying position.

Constant-Level Oilers

Gits Bros. Mfg. Co., 1846 South Kilbourn Ave., Chicago, recently introduced a line of constant-level oilers for application to electric motors. Available in the hinge type, the bayonet type, and the clamp type, these devices provide visible reserve oil supply for motors. In the hinge type, it is not necessary to remove the bottle to refill, and the arrangement prevents oil from overflowing bearings and entering motor housing. With the bayonet type oiler it is possible to make up an assembly for lubricating both bearings of a motor with one oiler. The clamp type differs from the hinge type in that there is no spring, but the bottle is held in place by a clamp. The body and shank of the device are constructed of one piece brass forging. Glass reservoir or bottle is securely held in cover with compression nut

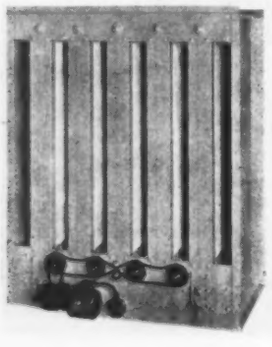
and packing. No glue or cement is used, as cork packing is used throughout.

Silk and Rayon Quill

A new silk and rayon quill designed to prevent the brass feeler from slipping or becoming detached has been developed by the American Bobbin Co., Lewiston, Me. There are two grooves in the brass and the top is turned into the wood, giving triple security. The quill is made from dogwood, and the brass base is countersunk flush with the wood. In addition, the manufacturer recommends the "200" finish, which is said to prevent the wood shrinking away from the brass when the quill is subjected to steam or varying ranges of humidity.

Self-Cleaning Air Filter

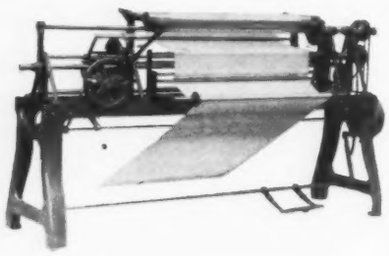
Coppus Engineering Corp., Worcester, Mass., has announced an automatic, self-cleaning air filter which employs a special wool felt for the filter curtain. The curtain is arranged in the



shape of an endless belt running in zigzag fashion over rolls. The edges of the filter curtain are reinforced by belts, which have the double function of keeping the filter curtain in a laterally stretched position and of providing an effective seal against the passage of dirty air around the edges. The special wool is said to give the filter a very high cleaning efficiency, not only against dirt, but also against invisible floating dust. The four bottom rolls are connected by chains and sprockets to a small geared electric motor, which is started either by means of a time clock at predetermined intervals, or with the help of a sensitive pressure gage whenever a maximum air resistance is reached. The filter curtain moves slowly over the rolls and passes over a special suction nozzle connected to a vacuum cleaner.

Winding and Cutting Machine

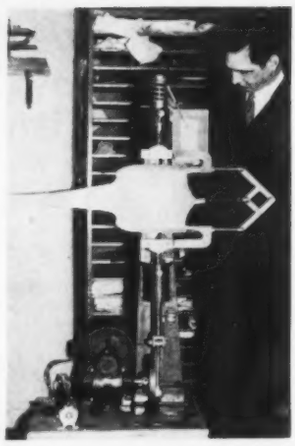
Fabric Machine Co., 307 Center St., Bridgeport, Conn., has developed a combination winding and cutting machine which



will handle materials up to 40 in. in width. Since both operations, cutting and winding, are done on the same machine, there is a saving in floor space, while only one motor is used. The machine is said to be suitable for handling all grades of fabric.

Hosiery Testing Machine

Development of a machine for testing the wearing properties of hosiery is announced by the U. S. Bureau of Standards, Washington, D. C. The machine provides a means for measuring the behavior of a stocking when the upper part of the leg of the stocking is repeatedly distended in a way which subjects it to stresses similar to those which occur at the knee and at the garter clasps of a stocking in use. Two, smooth, rounded jaws about 1 ft. long are inserted in the upper part of the stocking. The stocking is held in position by two garter clasps attached to opposite sides of the welt, halfway between the seam (at the back of the stocking) and the front edge. The other ends of the clasps are attached through springs to a fixed support such that the maximum



pull exerted at each garter is about 5 lb. and the direction of pull is approximately perpendicular to the edge of the top of the welt throughout the test. The ankle of the stocking is under a constant pull of approximately 1 lb. in the opposite direction to that at the garters. The two jaws are separated and brought toward each other by a reciprocating mechanism at a rate of approximately 60 cycles per minute. The maximum distance around the two jaws is 21.3 in. and the minimum distance is 13.3 in. Provision is made for recording on a chart the relationship between the load exerted on the stocking and the circumference of the stocking during each cycle of loading and unloading. The number of cycles are recorded on a counter. The test may be continued until holes or runs are produced in the stocking. The circumference of the stocking at a load of 30 lb. in the first cycle and at a load of 10 lb. in the 201st cycle have been used as measures respectively of the resistance of the stocking to stretching and the tendency to become baggy after repeated stretching. Stockings having constructions considered to be standard in the industry have not developed defects in 2,000 to 5,000 cycles of treatment on the machine. Obviously inferior stockings develop holes or runs in a very few cycles.

Drawings showing the details of the construction of the machine may be obtained from the Textile Section, U. S. Bureau of Standards.

Floor-Repair Material

Floor-repair material, which can be mixed with sand and cement and mortar laid cold, ¼-in. thick, has been developed by Stonhard Co., 401 North Broad St., Philadelphia. When concrete floors are to be patched or re-surfaced, chipping, roughening, or acid-washing are not necessary, ordinary cleaning being sufficient. The material will bond to concrete, wood, brick, wood block, asphalt, or composition floors, and is ready for traffic 36 hrs. after being laid.

NEW PUBLICATIONS

A Modern Tragedy, by Phyllis Bentley; The MacMillan Co., New York; $2.50.

Once more the textile industry has the distinction of being the subject of a novel by Miss Bentley, who already has taken her place in the front ranks. Her "Inheritance" was the chronicle of the Oldroyds, a family of Yorkshire wool manufacturers, over a period of more than a century. "A Modern Tragedy" has approximately the same geographical locale, but is confined within a much shorter time radius. It is the story of the effect of the depression, starting in the late nineteen-twenties, upon the fortunes, lives and characters of individuals identified with the wool manufacturing industry. It is a thrilling story, but with this we are not primarily concerned in this review. It is in Miss Bentley's handling of the tragic circumstances of the economic upheaval, still so real a part of the lives of all of us, that we are most interested. She has the remarkable ability of dealing with highly controversial subjects—such as employer-employee relationships, for example — without propaganda, partisanship, or sentimentality. She can recount good or bad actions, with sympathetic understanding of the motives of the doers, and yet without the emotional hysteria which mars so many a good tale . . . We have always thought the textile industry offers unlimited source-material for human drama. In the case of these two books, one of the most promising of modern novelists has utilized some of this material in a masterly way.

Safeguarding Industry Against the Pilfering of Ideas, by Henry Creange; George Grady Press, New York; $1.50.

This book crystallizes the practical experience of the author for the last 35 years, in directive and consultant capacities in the textile and other art industries. The plan outlined in the book, and which was discussed publicly at a dinner recently in New York, also proposes the creation of a joint trade relations committee by which manufacturers would receive inter-trade protection and recommends that a national body be set up so that distributors and manufacturers could meet for the formulation of joint trade relationships insofar as they deal with design piracy. The national committee could make suggestions for the formation of regional bodies and could prepare trade association rules and regulations which would assist in curbing piracy.

Worsted Spinning Economics, by H. King; F. King & Sons, Ltd., Halifax, England; 15 shillings.

"During ten years of investigation into the economic problems connected with worsted spinning," writes Mr. King, "one is astounded at the irregular, unsystematic, and crude methods employed by many spinners in arriving at the resultant production cost per pound." Most persons familiar with the situation will agree with this author in his criticism. Mills spinning 20s to 56s yarn from purchased tops in particular may derive benefit from comparing notes with Mr. King on methods for distributing overhead, calculating expected production, controlling production, and otherwise checking and supervising their operations. Unfortunately, from the viewpoint of convenience to most American readers, the cost figures quoted in the book are based entirely on English conditions and involve the English monetary system.

Cost and Production Handbook; L. P. Alford, Editor in Chief; Published by the Ronald Press Co., New York; Price $7.50.

This volume is designed to give practical working information on industrial operation which will be of benefit to everyone engaged in manufacturing, whether in a shop or office position. Uniting the two viewpoints of cost and production, it describes cost-accounting methods to control costs and production-control methods to reduce costs. Some 80 contributing and consulting editors, many of them connected with or well-known in the textile industry, have assisted in the preparation of the material; and the methods and policies of between 200 and 300 organizations are referred to in the text. In format the volume is similar to the standard handbooks on engineering, etc. The cost-production field is covered in 28 sections, of which the following are typical: production and expense budgets; production planning and control; simplification and standardization; purchasing; inventory control and storekeeping; incentive plans; handling

materials; cost accounting methods; standard costs; depreciation and obsolescence; development and research; and labor. This is the first major handbook in the combined field of cost and production; and it should be of real value to production executives—from company officers to overseers—and to financial officials, cost engineers, and general accountants.

Trade Associations; By W. J. Donald. Published by McGraw-Hill Book Co., Inc., New York; $4.00.

Written to meet the increased interest in trade associations aroused by recovery activities, this book should be of value both to the business man and the new trade association executive. The author discusses briefly the causes for the relative ineffectiveness of many trade associations in the past, and then takes up the policies, preliminary organization, membership, permanent organization, and activities of trade associations. In addition, he considers in detail the qualifications and duties of the association executive and his staff.

Business Literature

Loom production. Ralph E. Loper Co., Fall River, Mass., and Greenville, S. C. Table showing loom production at various speeds in picks per minute for cloth of different weaves.

Knitting Machinery. Textile Machine Works, Reading, Pa. January issue of Reading Record containing an article on the causes and remedies for bad selvedges in full-fashioned knitting.

Electrical Engineering. Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. Illustrated booklet, "Engineering Achievements in 1933," showing electrical developments in many fields of industry and transportation.

Power Transmission. The Mechanical Power Engineering Associates, 684 St. Marks Ave., Brooklyn, N. Y. An illustrated analysis of some fundamentals of industrial power transmission, based upon facts obtained by field studies, covering broad range of industries and plant operating conditions.

Roller Chains. The Whitney Mfg. Co., Hartford, Conn. Illustrated catalog, containing engineering data, on roller chains and sprockets.

Liquid Chlorine. Diamond Alkali Co., Pittsburgh, Pa. Booklet containing the history of liquid chlorine, with its physical and chemical properties, showing the latest approved methods of handling, utilizing and testing, together with several useful formulas, tables and graphs.

Bearings. The Fafnir Bearing Co., New Britain, Conn. Condensed catalog containing data on design and application of radial ball bearings, as well as power transmission wide inner ring and ball bearings.

BUSINESS NEWS

Textile Finishing Machinery Co., Providence, R. I., has opened an office at 919 Johnston Bldg., Charlotte, N. C., for the convenience of southern customers. H. G. Mayer, southern agent for many years and James Cook of the engineering and sales departments will represent the company with their headquarters at the Charlotte office.

Lombard Iron Works & Supply Co., Augusta, Ga., has leased the plant and properties of Standard Looms, Inc., at East Spartanburg, S. C., from the Spartanburg Textile Corp., which had lately acquired those properties. It is stated that Lombard will start up the plant for the manufacure of looms and other textile equipment.

Sulphonated Oil Manufacturers Association, meeting recently in New York reelected C. P. Gulick (president of the National Oil Products Co.) as president of the Association. Vice-president C. M. Brahm, of the Arkansas Co., Inc., and secretary-treasuren H. B. Sweatt, were also reelected.

Philadelphia Metal Drying Form Co. has announced the appointment of F. K. Johnston as sales representative for Tennessee, Georgia and Alabama, with offices in the Provident Building, Chattanooga.

Louis Allis Co., Milwaukee, Wis., has appointed Charles F. Norton, formerly vice-president and general manager of the Howell Electric Motors Co., to the position of general sales manager.

Westboyd Chemical Co., Inc., 612 West Lake St., Chicago, Ill., textile manufacturing chemists, recently appointed Walter G. Shull, Greenville, S. C., as southern sales agent.

W. J. R. Hauser has resigned as vice-president of the Revertex Corp. of America and has joined the Heveatex Corp., Melrose, Mass., as vice-president in charge of sales. He will make his headquarters at the newly opened Heveatex office at 90 Broad St., New York.

Wilbin Instrument Corp., with headquarters at 40 East 34th St., New York, has been formed for the manufacture and marketing of a line of electrical instruments for the control of temperature, humidity, vacuum and liquid levels. Officers are: president, Gus A. Binz; vice-president, Clement Wells; director and chief engineer, E. A. Ileman. Mr. Wells is also president of the Sarco Co., Inc.

SKF Industries, Inc., has moved its general offices from New York to Front St. and Erie Ave., Philadelphia.

William Bodden & Son, Ltd., Hargreaves Works, Oldham, England, manufacturers of flyers, voted voluntary liquidation on Jan. 24. According to the announcement "the company's trading will be carried on for the present with a view to making arrangements if possible for the continuation of the business."

D. W. Haering & Co., Chicago, manufacturers of water treating equipment, announce the following additions to their eastern sales staff, operating from the New York office: Rhode Island, Edwin H. Chandler; Massachusetts, Albert Nickerson, Albert Stewart and C. W. MacKinnon. The company reports a gain of 111% in sales for 1933 over 1932.

Railway Express Agency reports a decided jump in the number and variety of commodities handled, with the upward trend particularly notable in December and January.

E. F. Houghton & Co., Philadelphia, held their annal meeting last month, reelecting Louis E. Murphy, president, and Major Aaron E. Carpenter, first vice-president and general manager.

Joseph T. Ryerson & Son, Inc., Chicago, have announced that Harold B. Ressler, vice-president in charge of sales, has been moved to New York to take charge of the Jersey City plant, replacing J. A. McNulty who resigned.

Greenville Textile Show Widens Scope This Year

Northern manufacturers have been extended a cordial invitation to visit the eleventh Southern Textile Exposition, in Greenville, S. C., Oct. 15-20, for which preparations have been in progress for more than a year. In 1932 the scope of the Greenville show was extended to include wool, silk, and rayon mills, and dyeing, bleaching and finishing plants. W. G. Sirrine, managing director of the exposition, in discussing plans for the large machinery show, pointed out that nothing in the NRA codes for textiles prevents the replacement of worn or obsolete productive equipment.

Southern Industrial Council Formed

Plans for formation of the Southern States Industrial Council crystallized Feb. 26 at a meeting in Birmingham, Ala., when a permanent organization was effected. Among the aims of the council are preservation of the Southern wage differential to offset higher costs of production and transportation, and protection of Southern industry's interests in other ways. One point stressed was that Southern labor must be trained before becoming efficient. The officers of the council are: President—J. E. Edgerton, president, Lebanon Woolen Mills, Lebanon, Tenn.; vice-presidents—William D. Anderson, president of the Bibb Mfg. Co., Macon, Ga., and Donald Comer, president Avondale Mills, Birmingham; treasurer—R. C. Stobert, vice-president, Hardie-Tynes Mfg. Co., Birmingham; and secretary—C. C. Gilbert, secretary, Tennessee Mfrs. Assn.

Fish Help, Speaker Hampers, Canadian Textile Expansion

KESWICK, ONT.—Lake Simcoe fishermen have caught as many as 100 whitefish in one night by using red woolens as bait, according to E. J. Sanderson, student-pastor of Keswick Christian Church. The red wool is being used by fishermen on the bay at Orchard Beach.

OTTAWA—The decision of Mr. Speaker Black to stop women knitting in the galleries while listening to debates in the House of Commons was taken as a blow at the yarn-making industry by one company. It wired its member in the House protesting against the "gallery knitting ban." The telegram was referred to the Department of National Revenue but the Revenue Department is not concerned.

Knitting Machine Code Scope Broadened

Extension of the scope of the code for the knitting, braiding and wire covering machine industry to include manufacturers of knitting machine needles and the importers and distributors of products covered by its code, was authorized Feb. 19 by the National Recovery Administration. The administration also ordered various amendments to the code including the limiting of working hours to eight hours daily for a 40-hour week with leeway to 48 hours per week for certain peak periods.

Confer on Wear Tests

A conference on fabric wear and wear testing will be held at the Hotel Commodore, New York, Saturday, March 24, under auspices of the research committee of the United States Institute for Textile Research. This is the first of a series to develop plans for more efficient study of the Institute's major research problems.

Simplified Practice and Standards

In future, requests for assistance in developing simplifications or commercial standards can be made to either American Standards Association or Bureau of Standards, according to announcement by L. J. Briggs, director of Bureau.

Southern Freight Service Speeded

Faster textile freight service between the Carolinas and eastern points, through Norfolk, Va., has been announced by the Southern Railway, effective March 5.

Committee D-13 Meets

The spring meeting of Committee D-13 of American Society for Testing Materials was held in Washington, March 8-9. Details will be published in the next issue of TEXTILE WORLD.

TEXTILE WORLD'S

Cotton Digest

A YEAR of marked progress in the cotton textile industry has been marred by the failure to resume the publication of monthly statistics on cotton goods previously released by the Association of Cotton Textile Merchants of New York.

It seems impossible that the advantages of such publicity need to be re-stated. Furthermore, with the increase in the number of items on which manufacturers are now required to report, the compilation would be more valuable and more effective than any that has ever been made available.

What, then, is holding up a return to sanity?—*Editor.*

Cotton Textile Code Limitations Discussed

Limitation on machine hours was cited as the outstanding achievement of the cotton textile code in an address by George A. Sloan, president, The Cotton-Textile Institute, at the annual banquet of the Rhode Island Textile Association, in Providence, R. I., Feb. 20. Recognizing the benefits that have come from shortening the work week, from the establishment of minimum wages and other wage provisions, the speaker maintained that "there is no provision in our code that begins to approach in importance the reasonable restraint that has been placed on over-capacity—whether you view the matter from the standpoint of the industry, the industry's employees, or the industry's customers." His address, in part, follows:

"In recent weeks there has been an improvement in the statistical situation in the industry. Sales of cotton goods during January, 1934, exceeded production by 260 million yd., or 59%. The improved demand since the turn of the year has temporarily halted the tendency to accumulate stocks.

"When the machine hour limitation was introduced in the code the necessity was realized of devising some means of restraining the natural impulse of some mills, hitherto running continuously or nearly so, to build additional plants; the necessity was also realized of discouraging the entrance of outside capital seeking to take advantage of the improved conditions hoped for as a result of the 80-hour restriction.

"The National Recovery Administration has wisely concurred in the view that our industry shall have a resting spell from the bitter and destructive competition that this excess machinery entailed. Striking evidences of the depressed condition resulting from the severity of this competition are: In 1929, when the average price level of industrial securities was 350% above 1923, the average price of southern mill stocks was 38% below 1923, and New England textile stocks showed even greater depreciation; furthermore, Government data bring out that 1,060 cotton mills in the country had a net deficit of more than 100 million dollars after income tax payment in the last ten years."

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Modification Hearing

A hearing will be held April 2, in the Mayflower Hotel, Washington, on an application for modification of the cotton textile code to permit manufacturers to operate productive machinery on four 6-hour shifts, daily, provided the wage paid for six hours is the same that would be paid under the code for eight hours. The application has been filed by the Chicopee Mfg. Corp. of Georgia, and the Chicopee Mfg. Co., of Massachusetts.

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Bankhead Bill Sets 1934 Cotton Limits

Compulsory control of the 1934 cotton crop, limiting this year's ginnings to 10,000,000 bales, is provided for in the Bankhead bill, recently approved by the House Agricultural Committee. The plan calls for the setting of quotas by the Secretary of Agriculture, the aggregate for the cotton belt not to exceed 10,000,000 bales, and all surplus staple sold will be subject to a tax amounting to 50% of the average central market price, but in no instance less than 5c. per pound. Some market observers see a weakness in the bill in that it permits farmers to have cotton ginned and hold it on the farms, thus creating a depressing effect upon the market. Approximately 95% of cotton farmers answering the Government's questionnaire favored compulsory crop reduction, and the Bankhead plan has the support of President Roosevelt, but has met with opposition from Cotton Pool Manager Oscar Johnston. The voluntary reduction program will be continued this year also.

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Association Elects Officers

Charles Pinnell, of Fred Butterfield & Co., was reelected president of the Textile Fabrics Association, Feb. 8, immediately prior to the annual dinner held at the Hotel New Yorker, New York. Other officers elected were: Henry Lauten, of Prince Lauten Corp., chairman of the board; Edwin E. Berliner, of Edwin E. Berliner & Co.; and David Seiferheld, of N. Erlanger, Blumgart & Co., vice-presidents; and W. P. Fickett, manager-director. George A. Sloan, president of The Cotton-Textile Institute, was one of the speakers at the meeting. Other talks were given by Walter S. Brewster, of Pacific Mills, president of the Textile Export Association of the United States; Albert L. Scott, of Lockwood Greene Engineers, Inc., president of the National Association of Finishers of Textile Fabrics; and C. W. Dall, secretary of the National Rayon Weavers Association. Widespread endorsement of the new standard cotton textile salesnote was heard from the speaker's platform as well as in lobby discussions.

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Standard Cotton Textile Salesnote Issued

Copies of the standard cotton textile salesnote, approved by eight major buying and selling organizations in the industry, were transmitted to the trade early in February. This document setting forth the contractual rights of buyers and sellers in the cotton textile market, from which have been omitted those paragraphs dealing with tolerances, deficiency limits, allowances, methods and materials for testing, which in their nature vary with different classes of goods, is the result of efforts started three years ago. Organizations approving the standard salesnote are: The Cotton-Textile Institute, Inc., Textile Fabrics Association, Wholesale Dry Goods Institute, American Cotton Manufacturers Association, The Association of Cotton Textile Merchants of New York, International Association of Garment Manufacturers, The National Association of Cotton Manufacturers, and the Textile Brokers Association.

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Fashion Swatches From C. T. I.

The Cotton Textile Institute has issued an attractive folder showing 74 swatches of cotton fabrics under the title "Types of Fashionable Cotton Fabrics for Spring and Summer 1934." The samples were selected by fashion authorities from the staffs of *Collier's, Dry Goods Economist, Harper's Bazaar, Vogue* and *Women's Wear Daily.*

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Code Sub-Committee Named for Converters

President George A. Sloan, of The Cotton-Textile Institute, announced at the annual meeting of the Textile Fabrics Association, Feb. 8, that the cotton textile code authority had confirmed the appointment of the following members of a sub-committee for the cotton converting industry:

Textile Fabrics Association—Henry G. F. Lauten, Charles Pinnell, Edward S. Berliner and Arthur Borden.
Cotton-Textile Institute—George P. Ray.
National Association of Finishers of Textile Fabrics—H. R. Gessner.
National Rayon Weavers Association—A. L. Greene.
Association of Cotton Textile Merchants—S. Robert Glassford.

Government Aid Solicited by Export Trade

Reciprocal treaties and exchanges of quotas of products were suggested by the Textile Export Association of the United States, in a statement to The Cotton-Textile Institute, Feb. 9, as possible means of retaining our normal export markets. Cotton goods exports, which average about 500,000,000 yd. per year, were said to require over 1,000,000 spindles tended by more than 35,000 operatives. The Government's attention has been directed to the fact that additional NRA costs should be equalized if this export business is to be saved.

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January Cotton Statistics

Statistics of particular interest to cotton manufacturers, showing January operations and the raw material situation, were:

Spindle activity	98.5% of capacity, or 6,970,394,758 spindle hours
Cotton consumption	508,034 bales
Cotton ginned	
Cotton exports	739,352 bales
December figures for comparison follow:	
Spindle activity	73.5% of capacity, or 5,095,047,829 spindle hours
Cotton consumption	348,393 bales
Cotton ginned (Jan. 23 report)	12,558,762 bales
Cotton exports	820,000 bales

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Cotton Financial Notes

B. B. & R. Knight Corp. reports a profit of $26,452 for 1933 compared with loss of $485,058 for 1932.

Powdrell & Alexander, Inc. showed profit for 1933 of $229,495 compared with profit of $62,614 for 1932.

Cosmos Imperial Mills, Ltd., Montreal, showed net income for 1933 of $116,027 against $51,444 for 1932.

Soule Mill statement shows a loss of $7,764 for 1933 against a loss of $100,000 for 1932.

Brighton Mills reports profit for 1933 of $46,375 against loss of $94,533 for 1932.

Cabot Mfg. Co. reports net profit for 1933 at $299,230 as compared with net loss of $52,035 for 1932.

Pomona Mills report profit during 8½ months' of receivership to Dec. 31, 1933, of $16,214.

Riverside & Dan River Cotton Mills, Inc., reports net profit of $736,778 in 1933 compared with $29,314 in 1932. Net sales for 1933 were $14,269,169 against $9,661,261 in 1932.

Monquit Mills report profit of $12,970 for 1933, against loss of $185,122 for 1932.

Russell Mfg. Co., Middletown, Conn., was discharged from receivership Feb. 9. Cash on hand was reported to be $900,000 with liabilities amounting to $600,000. The new balance statement shows a surplus of $1,232,000 and an additional reserve item amounting to $52,400. Earnings of the company during receivership since June, 1933, totaled $97,000.

Graniteville (S. C.) Mfg. Co., including the Gregg Dyeing Co., also located at Graniteville, reported for the year ended Dec. 30, 1933, net profit of $167,625, after depreciation, taxes and reserve against decline in process inventory. This compares with net loss of $232,426 in the preceding year. Payrolls increased 17% in number of workers and 73% in dollar volume as compared with a year ago.

Clinchfield Mfg. Co., Marion, N. C., declared an extra dividend of 6% on stock of record Jan. 23.

Textiles-Incorporated, Gastonia, N. C., during the period of an operating receivership, June 16 to Dec. 31, 1933, inclusive, reported an operating profit of $478,825, before depreciation, according to statement by A. G. Myers and R. Grady Rankin, of Gastonia, receivers. Working capital was increased by $512,107 during the period.

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Cotton Mill News

West Boylston Mfg. Co., Montgomery, Ala., has awarded a contract for a brick and concrete warehouse, 85x104 ft., for storage and shipping purposes.

Ponemah Mills, Taftville, Conn., recently purchased a high-speed rayon warper with magazine cone creels from the Cocker Machine & Foundry Co., Gastonia, N. C.

Martha Mills, Thomaston, Ga., has received approval of Gen. Johnson for installation of 4,800 additional spindles transferred to Thomaston from another plant.

Stevens Mfg. Corp., Fall River, Mass., was sold at auction Feb. 15 for $311,228.50. The principal purchaser was Clarence Whitman & Sons, Inc., New York, holders $410,000 of promissory notes of the Stevens company. No. 2 plant which is operating was bid in for $250,000; No. 1 plant for $60,000 and a number of extra looms for $175.

Lambeth Rope Corp., New Bedford, Mass., has begun construction of new one-story addition, 40x100 ft.; contract let to Thorley & Megus, North Dartmouth, Mass. It will cost about $20,000.

Amoskeag Mfg. Co., Manchester, N. H., suffered a fire on Feb. 12 which gutted the sixth floor of No. 1 mill and caused considerable water damage on floors below. No. 1 mill, which had been closed since 1929, was in process of overhauling.

Johnson & Johnson, Inc., New Brunswick, N. J., are expanding the facilities of their Chicopee Falls (Mass.) plant by renovating and strengthening a 100x500 ft. building preparatory to installing new machinery and machinery to be brought from their Gainesville (Ga.) plant.

Efird Mfg. Co., Albemarle, N. C., is constructing three warehouses, 60x112 ft., for storing cotton.

Erwin Cotton Mills Co., Durham, N. C., is constructing 11 five-room dwellings for operatives to cost $27,000.

Gray's Specialty Yarn Co., Gastonia, N. C., has been incorporated with authorized capital of $100,000, subscribed stock of $300, by J. L. Gray, Mayme S. Gray, and W. C. Rustin, all of Gastonia.

Tabardry Mfg. Co., Haw River, N. C., is erecting an addition to provide space for 260 additional looms.

Laboratory Cotton Mills, Lincolnton, N. C., have approved plans for improvements, including installation of new equipment in carding and other departments.

Cross Cotton Mill, Marion, N. C., has begun extensive improvements representing about $125,000. Work is expected to be completed in three months.

Steele's Mills, Rockingham, N. C., are erecting a number of additional dwellings in the mill village.

Stonecutter Mills, Spindle, N. C., have erected 3600 ft. of Page, 7 ft., mill construction fence around their property. Work was done by the Allison Fence Co., Charlotte.

Appleton Co., Anderson, S. C., will soon begin construction of a new one-story brick addition, 110x910 ft., for which general contract has been let to the Townsend Lumber Co., Anderson. New unit will be equipped as a bleachery and will cost over $150,000, including equipment. J. E. Sirrine & Co., Greenville, S. C., are consulting engineers. It is the third large project by Appleton in the last two years.

Anderson (S. C.) Cotton Mills recently completed the installation of 16,128 additional spindles, bringing the plant's total equipment to 82,528 spindles and 1,920 looms.

Springs Cotton Mills, Lancaster, S. C., are installing new equipment in the Springstein plant, at Chester, S. C., including 24,928 spindles and 464 Draper Model X looms, replacing obsolete machinery which has been scrapped.

Chesterfield (S. C.) **Yarn Co.,** has arranged for lease of plant of the **Roseboro Cotton Mills,** Clinton, N. C., idle for about three years. New equipment will be installed.

Clinton Cotton Mills and **Lydia Cotton Mills,** Clinton, S. C., operated under the same management, are installing a new steam turbine plant at a cost of $250,000 to $300,000, and will generate their own power. These plants have been operated by purchased power.

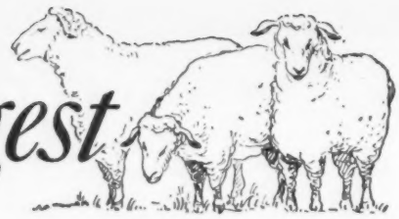
Brookside Mills, Knoxville, Tenn., have installed 24 new looms.

Associated Textiles, Ltd., Louisville, Que. will complete its plant addition early in the spring.

Esmond Mills, Ltd., Granby, Que., is preparing to increase its production by 50% by installation of new machinery.

TEXTILE WORLD'S

Wool Digest



IN our opinion, what the Wool Textile Code Authority needs most is a little authority. And, since it is theirs for the taking, the members of that body have no one but themselves to blame for the aimless deadlock into which "self-government" in the wool industry has degenerated.

Self-government does not mean a chance for every member of an industry to obstruct progress. And yet that was the type indulged in at the March 1 meeting.

Self-government means the creation of a representative group which will study a problem and devise a remedy. This group—the Code Authority—in the wool industry hasn't had a chance. All the old reactionary attitude which has impeded the industry's progress for so many years, is again holding up the parade.

There is only one answer: The Code Authority should inform the industry in no uncertain terms that the day for such tactics has passed—and should go ahead and exercise the power to which Code Authorities are entitled.—*Editor.*

Those Cotton-Mixes!

Toward the close of February the men's wear market remained slow with uncertainty on fall openings. Spring remains quiet though deliveries on old orders are active. There is said to be a turn of interest from mixtures to cotton-mixed fabrics. These meet price necessities but the quality is not such as to heighten the consumers respect for the industry unless it is made clear to him just what he is buying.

Women's wear is fairly active at spot and nearby and mills which can make quick deliveries of wanted shades are kept busy. Tweeds are leaders in women's wear with flannels a close second.

At time of writing it was not clear just what price level was being set for fall but anticipation was that prices would be higher than those at which some earlier business was done. On Feb. 27 American Woolen Co. withdrew all prices in Dept. 3, woolen suitings and coatings. American Woolen No. 131, 12½-13 oz., worsted was available at $1.70 recently for early fall business, par with spring opening six months ago but 60% above 12 months ago. Opening price to the general market will be around $1.90 it is believed.

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Narrow Swing in Tops

Spot tops at Boston up to March 2 had remained unchanged at 112.5c. for several months. During this period top futures fluctuated within a narrow range examplified by a high-low of 110.2 and 108.6 for the August contract. After mid-February the December contract touched 112.4 the highest for any month since the exchange opened. Increasing quantities of tops have been certificated for delivery on the N. Y. Wool Top Exchange covering now, it is said, 30% of all top in the country except that stored in spinning mills.

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Rag Market Gains

There is greater interest in old and new rags as the market for wool substitutes returns to something like its old-time importance. Good softs are scarce and white stock a rarity. White knits have touched 46c. and white softs 43 to 44c. Light hoods have touched 26c. Even the darker rags have improved with blue serges at 11c. and fine dark merinos at 6c. Soft woolens were lately at 14c. compared with 12c. in mid-January.

•

Wools Steady in Waiting Period

Semi-stagnancy prevailing in the grease wool section of the market as March opens, is having no influence in depressing prices which have been steady to strong and on nearly the same level for the last three months. If there were anything like a normal surplus of unsold wool, the inactivity of mill buyers might lead to offerings at concessions, but as the supply is small and as the price trend on the new clip wools in the West is upward, the situation it is expected will remain without change until some developments of force and importance occur. Western wool-growers, unacquainted possibly with the uncertainty seen in the general manufacturing situation, are thinking of their 1934 clip in much higher terms.

Scoured wools in general are fully up to normal price relations with grease wools. Woolen manufacturers are seeking cheaper-cost substitute materials to enable them to meet the lower-priced public demand for clothing. The medium wools continue relatively active in the several pulled Bs, Texas eight months and medium-priced scoureds.

•

American Woolen's Best Year Since 1919

The annual report of the American Woolen Co. issued Feb. 7 confirmed the wildest of the advance rumors in showing that the big company had rolled up a profit of $7,053,088 for 1933 compared with a loss of $7,269,822 for 1932. The profit is the first shown since 1927 and the best showing of any year since 1919. Inventory losses which had bulked large in the company's worst years were nearly wholly lacking in 1933. Lionel J. Noah, president, warned that the year had had unusual features and the profit "should not be regarded as a measure of what may be expected in the future."

Provision for depreciation was increased from $1,091,662 last year to $1,816,132 this year. Inventories at $36,437,730 were up $22,500,000 from 1932. Government securities which in 1932 were set at $6,376,984, were not listed in 1933 and the cash position was lower. Bank loans of $5,850,000 appear on the 1933 statement, all of which suggests the higher cost of doing business and the investment in larger stocks of raw materials and goods.

The American's net profit or loss, surplus and inventory at end of year for the last 19 years follows:

Dec. 31	Net profit	Total surplus	Mdse. inventory
1933..	$7,053,088	$25,892,427	$36,437,785
1932..	d7,269,822	‡18,208,378	16,928,872
1931..	d2,836,826	¶17,738,679	20,818,472
1930..	d4,897,854	4,787,386	19,801,708
1929..	d4,228,190	9,684,971	28,654,328
1928..	d1,262,263	13,913,161	46,148,309
1927..	600,112	15,175,425	43,239,698
1926..	d4,225,845	15,597,022	45,864,990
1925..	949,172	23,324,616	54,165,289
1924..	d6,944,420	22,127,357	49,975,795
1923..	6,660,212	33,596,725	56,007,894
1922..	6,254,002	32,606,354	43,367,545
1921..	6,006,648	13,915,381	40,621,118
1920..	4,626,855	31,508,732	43,977,405
1919..	11,779,804	31,754,426	52,990,145
1918	7,072,527	19,724,623	37,521,106
1917..	§10,883,156	14,413,096	42,829,234
1916..	5,863,819	11,368,940	23,535,782
1915..	4,080,685	9,305,121	18,053,972

d Net loss. ‡ Arising largely from common capital change. ¶ Deficit. § After $3,000,000 tax reserve.

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Carpet Advertisers Meet

Floor Covering Advertising Club held its annual dinner meeting on Feb. 8, at the Advertising Club of New York. Speakers included Roscoe R. Rau, managing director of the National Retail Furniture Association, Chicago; Peter Ainsworth, director of the National Better Homes Contest, *Better Homes & Gardens,* Des Moines; and Herbert Gutterson, president of the Institute of Carpet Manufacturers of America, Inc., New York. Presiding at the dinner was Lewis G. Van Akin, advertising manager of W. & J. Sloane, and president of the Floor Covering Advertising Club.

Boston Wool Dinner

The Boston Wool Trade Association held its 20th annual dinner on Feb. 27. Robery L. Studley, president of the body, presided. Mr. Studley is also president of the National Wool Trade Association and chairman of the Code Authority for the wool trade. He introduced the guests of the occasion, including Arthur Besse, president of the National Assn. of Wool Mfrs. and chairman of the Wool Textile Code Authority. About 800 attended the dinner and the guest speaker was H. V. Kaltenborn, commentator on current events, who spoke on "The World in Revolution."

The afternoon session was primarily to aid in drawing up a fair practice code for presentation to Washington on or before March 29. A. Henry Thurston, assistant deputy administrator, was on hand to answer questions and he made it clear that the government had no desire to construct the code, but rather had the rôle of critic and final judge of what the trade itself wanted. The code will be drawn up by representatives of the National Wool Trade Association.

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Buys 947,024 Blankets

The Army opened bids on 947,024 wool blankets to conform to the Kirsner specifications No. 8-1105 of Jan. 25, 1934, for Class A, 3½ lb. The warp is two-ply worsted not heavier than 2-26s, Bradford spun of wool not above 56s grade. The filling is to be spun on woolen system of wool not lower than 64s grade. The weave is four-harness filling-back weave. Minimum threads per inch on 3½ lb. blanket are 40 in warp and 54 filling. Bids ranged from $6 to $12.20. There were 17 bidders and the four who bid on 100,000 or more ranged from $7.25 to $9.98. Market observers believe that it is a mistake to make army blankets out of such fine wool as specified and believe the specifications may be revised to obtain a lower price.

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Collins & Aikman Offer Lines for Women's Wear

Collins & Aikman Corp., by acquisition of Curtis-Marx Co. have set up a new women's wear woolen department under the direction of James E. Curtis. New spring fabrics are being shown in the showrooms at 200 Madison Avenue.

•

American Drops Rebates

American Woolen Co. has announced that with the fall season its rebate system on volume purchases will be discontinued. The rebates ranged from 2% for $200,000 to 5% for $750,000 or more. Discontinuance of this system will permit the company to name its lowest price to everyone. In some quarters it was said that large advance buying which the system was designed to encourage has fallen to a low point.

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Worsted Faces Cotton Competition

Worsted yarns were irregular toward the close of February though the situation gives evidence of quick strengthening. A few offerings at cut prices were doubtless yarns spun against order but never specified by buyers. There are numerous strengthening influences in sight, but some alarm is felt over the rapidly increasing use of cotton. Not only are cotton warp worsteds returning to a place of prominence but knitters of sweaters are said to be using only about 30% as much worsted as last year per unit of product.

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Activity of Industry

Current statistics on wool consumption and mill activity follow, the activity percentage being based on single 40 hour shift, 5½ days per week:

Wool consumed:	January	December
Total clean equivalent (excluding carpet)	12,512,000	12,276,000
Carpet wool (grease)	8,059,000	6,045,000
Activity machinery:		
Looms (50" and wider)	82.5%	74.2%
Carpet looms	44.0%	46.4%
Combs	90.5%	97.7%
Worsted spindles	64.2%	58.8%
Woolen spindles	87.5%	71.8%

Total consumption of wool in U. S. for 1933 (clean basis) was 186,190,000 lb. against 145,617,000 for 1932, a gain in volume of 29%.

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Wool Financial Notes

Arlington Mills reports for year ended Dec. 2, 1933, net profit of $502,477, compared with net loss for previous year of $1,111,546 and net loss of $855,981 for year before that. Financial position showed improvement despite marked increase in borrowings from banks. Sales for the 1933 period were 54% more in dollars and 37% more in units than in previous year.

William Whitman Co. reports a profit for the year 1933 of $140,030 against a loss of $572,165 in 1932.

Bigelow Sanford Carpet Co., Thompsonville, Conn., declared a special dividend of $1 a share on common stock, paid Feb. 15. This is the first payment on the common since Aug. 1, 1930. A net profit of $1,110,000 was reported from 1933 operations as compared with a net loss of $1,948,737 resulting from operations in 1932. Sales in dollars for 1933 were 20% or $2,145,087 ahead of 1932.

Chautauqua Worsted Mills, Falconer, N. Y., have filed notice of change in capitalization from $1,000,000 to $600,000.

Cleveland Worsted Mills Co. reports net profit for 1933 of $351,144 against a net loss of $351,110 in 1932. E. S. Hanson was elected director to succeed S. S. Stafford, resigned.

Sidney Blumenthal & Co. reports net loss for 1933 of $164,125 against a net loss for 1932 of $1,895,550.

M. J. Whittall Associates, Ltd., Worcester, Mass., were placed in temporary receivership on March 6 by action of the Superior Court in appointing Geo. H. Mirick and Fredk. R. Allen temporary receivers. The action was said to be the result of shortness of cash despite a ratio of current assets to liabilities of 3 to 1.

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Wool Mill News

Livingston Worsted Mills, Inc., Holyoke, Mass., J. Herman Stursberg, president, are owned by the old stockholders of the Germania Mills, Holyoke, and of the Livingston Worsted Co., Washington, R. I. E. J. Abbott of Wilton, N. H., is chairman of the board. Herbert J. Stursberg, treasurer, has office in the Graybar Bldg., New York. G. P. Newell, for many years with Livingston at Washington, is in charge of weaving and finishing; S. B. Gill remains in charge of combing and spinning. A new sales organization, Stursberg & Co., 51 Madison Ave., is selling for both Abbott Worsted Mills and Livingston Worsted Mills. Ernest Gledhill continues with the new organization.

Tiffany Woolen Mills, Webster, Mass., is shortly to be expanded by addition to dyehouse to accommodate four more dye kettles and extension of wool storage sheds.

Harris Rug Mill, Inc., Englishtown, N. J., care of Edward W. Potter, has been organized to operate a local mill.

Buckingham Woolen Mills, Inc., has been chartered in East Brady, Pa., with a capital of $3,000. Principals of the new firm are C. C. Rinehuld; J. C. Uber and W. W. Fordyce.

Topton (Pa.) **Rug Mfg. Co.,** has concluded arrangements for purchase of the **Long Valley Rug Mills,** Mertztown, Pa., and will operate as branch plant.

Marion Woolen Mills, Inc., Wyoming, R. I., plan early rebuilding of portion of mill damaged by fire, with loss reported close to $12,000.

Parsons (W. Va.) **Woolen Mill** is reported leased to Samuel L. Hoffman, New York. W. U. Hanke, superintendent, advised that spinning operations began late in February.

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TEXTILE WORLD'S

Rayon Digest

WE are not in a position to know whether or not the rayon companies cited by the Federal Trade Commission, really did indulge in the price-fixing and other monopolistic tendencies complained of.

We do feel sure, however, that, if such practices were attempted, they were ineffective, in our opinion. We have continually berated the rayon industry for its failure to exercise the degree of control possible in a man-made fiber. We have felt that this failure reacted against the interests of the industry's consumers, in that stability was destroyed. To have this same industry now charged with offenses in the other direction, impels us to laughter of the sardonic variety.

In addition, with the NRA trying to get firms together and to stamp out price chiseling, the complaint against the rayon producers can hardly be termed timely.—*Editor.*

Wait Rayon Reply In Anti-Trust Suit

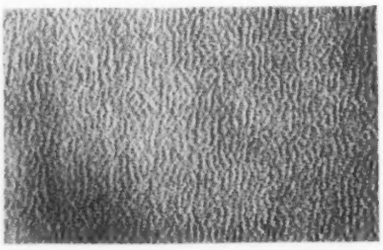
Pending publication of the answer which ten rayon yarn companies were directed to make this month to the Federal Trade Commission's charge of monopolistic practices, the rayon industry was speculating as to what rayon-consuming companies had supplied the Federal Trade Commission with its evidence for the action. Trade leaders saw a cue in the news that representatives of Arcadia Knitting Mills, of Allentown, Pa., were expected to be witnesses at the coming hearings. Prof. A. A. Berle, City Chamberlain of New York, made known that he had become associated with Lawrence Kahn of Marx & Kahn, attorneys for Arcadia, to serve in any action which might develop incident to the suit against the rayon producers.

The action, which alleged price-fixing and restraint of trade, was first disclosed Feb. 7 when the Federal Trade Commission filed a formal complaint against the following firms: The Viscose Co., DuPont Co., Tubize Chatillon Corp., American Glanzstoff Corp., Industrial Rayon Corp., American Enka Corp., all of New York; Skenandoah Rayon Corp., Utica, N. Y.; Delaware Rayon Corp., New Castle, Del.; Acme Rayon Corp., Cleveland, O., and the Belamose Corp., Rocky Hill, Conn. The complaint also cites 22 members of the accounting firm of Price, Waterhouse & Co., which company, it is contended, was retained by the rayon firms to assist in maintaining fixed prices of rayon yarn by auditing the books of each company to detect any variations in prices of yarn.

The complaint charges an agreement on the part of the producers to eliminate price competition among themselves; to fix prices at which fabric knitters should sell cloth made from their yarn, thus determining the price of the fabric in interstate commerce; and to refuse to sell yarn to knitters who did not maintain the fixed fabric prices.

Two points stand out in the suit: First, it was brought under Federal Trade Commission Act and not under the anti-trust laws, and therefore the only penalty can be an order to cease and desist; second, it was one of several similar complaints filed by the Commission, which fact is seen as indicating a desire by the Administration to prosecute monopolistic practices and at the same time to avoid, if possible, any upset in the liberalized interpretation of the Sherman law which maintains throughout the coded industries.

Subsequently nine companies were granted an extension until March 31 to answer the charges; the Delaware Rayon Co., filed a reply denying existence of a monopoly, or any effort to restrain competition.



Versatility of use lends distinction to "All-Day Crepe," a new woven fabric made by Wellwood-Norwich Co., of Tubize Chatillon yarns. The fabric, which is equally adaptable to sports, daytime and evening apparel, has an acetate warp with viscose filling; it is pre-shrunk and guaranteed against shrinking or crinkling in tub or dry cleaning. Available in spring and summer shades, it is being placed by Arthur S. Lever, Inc., converter, with dress houses in the $16.75 range.

Acetate Price Cut Wins Approval

Belief was general in the industry at the beginning of March that the trade-wide reduction in cellulose acetate yarn prices, precipitated by the DuPont Rayon Co., was a step in the right direction, since it served to reduce below-list selling and to readjust the price relationship between acetates and viscose process yarns. DuPont announced its cut on Feb. 22, the reductions varying from 10c. on the 45 denier yarns to 22c. on the 150s. Within a few days, similar reductions were made public by Celanese Corp., Tennessee Eastman Corp. and Viscose Co., and the Tubize Chatillon Corp. indicated that it also would follow.

Leading elements making for the cut were: The tendency of certain firms to quote inside prices on acetates, and the growing conviction that the existing spread between acetates and viscose yarns on the list was too large. It was pointed out that with the pronounced trend toward finer deniers of viscose and the increasing acceptance of this yarn in the quality fabric field, the wide difference in price was unwarranted.

Market hesitancy following the reduction was much briefer than usually accompanies such development, the prevailing thought among mill men being that the new levels would tend to strengthen the position of both acetate and viscose yarns.

The new DuPont price list for acetates, bright and dull spools and cones, together with former quotations follows:

Denier	New Prices	Former Prices
45	$1.30	$1.40
60	1.20	1.25
75	1.10	1.15
100	.95	1.10
120	.80	1.05
150	.78	1.00
	Tinted cones	
100	.85	
120	.80	
150	.75	

April Yarn Demand Active

Rayon market tone steadied quickly following the uncertainty incident to the acetate price cut, and at the start of the current month buying for April delivery was active. The call for viscose yarns centered on 150s and 100s, with especial interest in the dull-surface numbers. Weavers placed considerable business, though the volume as a whole was less than at the beginning of the year. Producers find a slackening of interest in some divisions of the underwear trade, but this is viewed as only a temporary condition, being due to the fact that unusual weather conditions have slowed up garment sales.

The spring outlook is for consistent though not too spirited yarn movement, with price tone probably healthier than before, thanks to the adjustment of the acetate versus viscose price situation. Stocks are still at a minimum; leading plants have less than three weeks' yarn supply on hand.

Yarn Group Submits Code Authority Plan

Prospects for a code authority for the rayon and synthetic yarn industry were strengthened in late February when the yarn producers prepared a plan for the creation of such a body. The draft of the plan has been submitted to the National Recovery Administration for approval.

Details of the proposal have not been disclosed. It is understood, however, that the entire industry would be represented on the code authority, and that each process would have autonomy in deciding its own questions. This second proviso is important in that it is expected to eliminate the long-prevalent fear that the viscose branch might dominate the industry.

This antonomy is provided for in proposed amendments to the industry's code which have been submitted to NRA. The amendments affect Articles II and VIII.

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Early Decision on Tax Expected

The question of a compensatory tax on rayon remained unsettled at the opening of March, with indications pointing to an early decision by the Agricultural Adjustment Administration, at Washington. The last four weeks have been replete with developments, among which the highlights were: First, a hearing Feb. 19, before the A.A.A. at Washington, following which the opinion prevailed among those attending that a tax would be imposed; and, second, a brief submitted Feb. 23 to the A.A.A. by Chas. Whitney Dall, as secretary of the National Rayon Weavers Association, which was regarded as greatly strengthening the opposition to the tax.

Witnesses at the Washington hearing who included representatives of the weavers and the yarn producers stressed the point that, according to statistics, the cotton tax had failed to help rayon sales. In his brief, Mr. Dall quoted abundant data showing that cotton sales had gained subsequent to the tax; his most telling point, in trade opinion, was his presentation of data proving that after the imposition of the cotton tax rayon sales had declined.

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Would Curb Inferiors

Control of the sale of inferior rayon yarn is included among a list of recommendations in the February *Textile Organon,* published by Tubize Chatillon Corp., as a line of approach that producers might adopt to counteract the effects of the silk campaign recently inaugurated by the International Silk Guild. Remarking that "unwise use of inferior yarn can do more harm to the rayon industry than thousands of dollars' worth of merchandising effort could offset," the publication urges that producers develop some plan for closer scrutiny and control of outlets for inferior yarn, suggesting that the yarn be limited to the waste market "or even eliminated altogether."

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British Output Gains

Domestic consumption of rayon in Great Britain increased about 18% in 1933, according to a report from U. S. Consul A. R. Thomson, Manchester, made public by the Department of Commerce. Production of yarn and waste totalled 84,000,000 lb. in 1933 against 72,500,000 lb. in the previous year, most of this being consumed in the home market, he stated. Three of the largest companies are planning large extensions to their plants.

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Rayon Crepes Active

Demand for various rayon crepe specialty fabrics, including the popular pebbled numbers, registered a significant pick-up in February, according to leading weavers. Both cutters and piece goods buyers placed substantial orders, it was stated, and there is a tendency among retailers to promote certain of the older specialty rayon fabrics as semi-staples. Current sales interest is spread through a wide range from the canton type to the ultra-sheers.

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1933 Exports $2,485,577

Exports of rayon merchandise during the year recently ended totalled $2,485,577, according to figures compiled by the Bureau of Foreign and Domestic Commerce of the U.S. Department of Commerce. During December, 1933, exports aggregated $198,265. Staple fiber led in the imports of synthetic yarns, totalling $1,129,886, for the year.

Other key 1933 statistics in both divisions follow:

Exports	Quantity	Value
Yarn, lb.	1,109,588	$565,920
Dress and piece goods (woven) sq.yd.	2,769,368	798,336
Imports	**Quantity**	**Value**
Yarn, fil., lb. (under 30")	3,362,977	$1,129,886
Dress and piece goods waste, noils, tops, etc., lb.	2,680,135	448,840

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Rayon Mill News

Celanese Corp. of America, Inc., Amcelle, Md., has begun superstructure for new two and three-story additions to mill, 112x425 ft., in connection with expansion program recently announced. Structures will form extensions to present Mill No. 3. Hughes-Foulkrod Co., Philadelphia, Pa., is general contractor. Entire program is estimated to cost about $500,000, with equipment. **Celanese Corp.** awarded a contract to George F. Hazelwood, Cumberland, Md., for construction of a two-story and basement brick cafeteria building.

Du Pont Rayon Co., New York, N. Y., has authorized plans for expansion program at mill at Ampthill, near Richmond, Va., consisting of several new units, designed to raise capacity nearly 50%, and increase working force by about 750 operatives. Program will begin in the spring. It is estimated to cost about $500,000 with machinery.

Beaunit Weaving Mills, Cohoes, N. Y., has converted a machine shop adjoining its property into a dyeing plant which will utilize 250,000 gallons of water daily.

Greensboro, N. C. A group of local business men have let contract to Angle & Blackford for erection of an industrial building, part one-story sawtooth roof, part two-story, including 50,000 sq.ft. floor space. Negotiations are being conducted through J. Spencer Love with eastern textile interests for establishment of a rayon or silk plant there to employ from 200 to 300 workers.

Industrial Rayon Corp., Cleveland, Ohio, is said to be planning establishment of new branch mill at Utica, N. Y. Negotiations are reported under way with John J. Sinnott, receiver for McLoughlin Textile Corp., Utica, for acquisition of mill property of that company for proposed plant. Although its proposed expansion program at main plant at Cleveland has been held up through municipal difficulties with necessary sewage, company has plans maturing for new addition in hands of Christian, Schwarzenberg & Gaede, 1836 Euclid Ave., Cleveland, architects, and proposes to begin work at earliest possible date. Latter project is reported to cost over $200,000, with equipment. Jamestown, N. Y. and Coshocton, Ohio, are among the ten or more localities in the running with prospective sites.

Canadian Celanese, Ltd., Montreal, Que., had an operating profit of $1,857,666 for 1933, as compared with $1,301,190 in 1932.

TEXTILE WORLD'S

Silk Digest

THE letter addressed by the National Association of Hosiery Manufacturers to Japanese silk interests urging that the quality of raw silk be improved, brings to the fore once more a problem which has arisen frequently in recent years.

It is stated in certain quarters that the low wages, poor working conditions and consequently poor morale among reelers in Japanese filatures are the primary cause of the trouble. On the other hand, it is contended by many that the general adoption, in Japan, of the nine-meter composite test, and the radical improvement of testing departments and methods in the filatures of that country would do most to eliminate the defects.

Whatever the fault—and it undoubtedly is a combination of these two—the remedy must be found speedily if silk consumption is not to experience further and more serious contraction.

—*Editor.*

Van Horn Named Silk Chairman

Appointment of Peter Harry Van Horn, president of the National Association of Better Business Bureaus, and general manager of the Columbus, Ohio, bureau, as impartial chairman of the Silk Textile Code Authority, and also his election as vice-president of the Federated Textile Industries, Inc., was announced in New York March 2. Mr. Van Horn, who has been a leader in Better Business Bureau activities for many years, took up his new work March 4, when the authority met in Washington for the Code Congress. He was a major factor in shaping the master retail code in Washington last summer. When his services there terminated, Gen. Johnson paid warm tribute to the value of his work. Subsequently he was executive secretary of the Retail Code Authority.

The Federated Textile Industries, Inc., was still in doubt as to its permanent name when March opened. The term National Federation of Textiles was proposed but when this name was offered in the United States District Court as a solution to the suit recently started against the F.T.I., it was objected to as being too similar to the name of the objecting party, the Federated Textiles, Inc.

The Broad Goods Weavers Association, an F.T.I. affiliate, has elected the following executive committee:

Charles E. Bloom, The Edward Bloom Co., Inc.; Ward Cheney, president, Cheney Brothers; Otto Froelicher, vice-president, Schwarzenbach Huber Co.; Alexander F. Ix, Frank Ix & Sons, Inc., J. W. Schwab, treasurer, Cohn-Hall-Marx Co.; W. Stunzi, president, Stunzi Sons Silk Co.; E. C. Walters, general manager, Phoenix Silk Manufacturing Co., Inc.

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Fabric Sales 60% Above Last Year

Broadsilk demand turned strongly to prints during February and, despite the handicap of sub-zero temperatures, this division of the market showed real activity. Orders picked up steadily, this being true of both retail and cutting-up outlets. Mills reported a declining call for the low-priced mossy crepes, but the new numbers in this range which sold in the higher brackets enjoyed a good call.

It is estimated that silk fabric sales are about 60% above this time last year. The most notable feature of current buying is the large size of individual orders; mills are writing numerous substantial contracts. While prints, especially florals and the new floral-geometrics, are the season's highlight, there is also considerable interest in plains centering on heavy sheers, with medium to light shades favored.

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Propose World Silk Conference

A resolution urging that immediate steps be taken to hold an International Technical Raw Silk Conference before the end of this year, was adopted Feb. 10, at a meeting in New York of the Joint Committee on Raw Silk Classification. The committee represents the Commodity Exchange (Raw Silk Trade Group), Federated Textile Industries, and the National Association of Hosiery Manufacturers. The resolution states that serious injury is being done to the silk industry by the present "irregular and unsatisfactory type of raw silk production." Copies of the resolution have been sent to all the American trade associations affected, and to silk organizations in France, Great Britain, Canada, Italy, China and Japan.

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Throwsters Meet

With the aim of solving code problems in the throwing industry a general meeting of the industry is being held at Hotel Taft, New York, March 17. The meeting has been called by the Code Administration Committee and attendance is confined to owners of throwing machinery. Plans to halt continued price-cutting through enactment of a code clause which would prohibit below-cost selling are scheduled for discussion, following which recommendations will be made.

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Authority Personnel

The personnel of the Silk Textile Code Authority was made public last month. No successor to the late Sol C. Moss, of Moss-Still, Inc., has yet been appointed. The other 13 members are:

K. B. Blake, Cheney Bros., South Manchester, Conn.; Louis E. Cohn, Prudential Silk Mills, Paterson, N. J.; B. Edmund David, David Silks, Inc., New York; E. C. Geier, Duplan Silk Corp., New York; C. D. Jencks, Hamlet Textile Co., Pawtucket, R. I.; Fred A. Kattermann, Kattermann & Mitchell, Inc., Paterson, N. J.; W. W. Metcalf, Portland Silk Co., Middletown, Conn.; John R. McGinley, Phillipsburg Silk Co., Phillipsburg, N. J.; Belvidere, N. J.; James P. Quinn, The Taylor-Friedsam Co., Paterson, N. J.; Ewald H. Schniewind, Susquehanna Silk Mills, New York; James A. Goldsmith, Hess, Goldsmith & Co., New York; Henry E. Stehli, Stehli Silks Corp., New York, and Lucius Root Eastman.

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Deliveries Above 1933

Raw silk imports during February totaled 29,808 bales, or 6,431 bales above imports of February 1933, the Federated Textile Industries, Inc., reports. Silk in storage in warehouses was 74,607 bales on March 1, 1934, or 14,148 bales above March 1, 1933. Deliveries to American mills during February were 39,021 bales, or 6,356 above the same month of 1933. February deliveries were 1,921 under last month.

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Armure Weaves Active

Increased interest in the new armure weaves on the part of the cutters and retailers is reported in New York market. This novelty construction which first won approval when introduced in Paris last year, is now available in a wide range of fabrics and shades. American Silk Mills, New York, announce that the line is popular in three divisions: Silks, silk and synthetic mixtures, and all synthetic fabrics.

Vital Decisions By Code Authority

Activities of the Silk Textile Code Authority during February were of unusual significance and included innovations which it is hoped will materially improve conditions in the silk and rayon industry. Among the major accomplishments were: Revision of standards for the examination of finished broadsilks; a stronger stand against abuses of the overtime provisions in the code for supervisors, shippers, and watching crews; a decision to publicly list all code violations; and the outlining of plans for the handling of labor disputes.

In the broadsilks examination standards, the chief change was that the examining machine or its supporting table be placed perpendicular to the rays of light rather than parallel as heretofore.

Other developments were: Recommendation that the code include fabric standards was made by Consumers Advisory Board; Paterson, N. J. Industrial Relations Board ordered a 3% wage cut to equalize with other silk districts; Gen. Johnson approved Velvet Industry Code Authority; Emil J. Stehli urged a 30-hour week, $18 minimum wage.

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Boy's Plea Wins Code Authority Aid

A novel role was assumed by the Silk Textile Code Authority in February when this body sent a message to all its field investigators to try to locate Henry Nothdurft, silk mill superintendent, address unknown. The Authority acted on a letter received from Nothdurft's son, Robert, 15 years. old, of 479 Madison ave., Paterson, N. J., who wrote that since the death of his mother, he and his small sister have been in acute need. The boy said his father was formerly employed by Joseph Wien & Sons, Bethlehem, Pa., and later by J. C. Welwood, Hawley, Pa., but that he lost track of him several years ago. In his letter the boy wrote that he "felt positive his father would communicate with him if he were notified."

Promise of a new market for silk is seen in the development of oil silk fabric from which these beach pajamas are made. The fabric is made in Japan on hand looms; it is very sheer and is available in several weights; finished by the General Electric Co., it is distributed by the Blossom Mfg. Co., New York; price is said to be 80c. per yd., 36-inch. width. The fabric has excited considerable attention among stylists. Oil silk also is going into millinery.

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Paris Contacts Aid Silk Campaign

Plans for a closer tie-up with Paris fabric and garment designers in the silk promotional campaign were being developed rapidly through February by the International Silk Guild. An important step in this program was taken Feb. 19, when Paul Hyde Bonner, former vice-president of Stehli Silks Corp., who has been resident abroad in late years, was appointed European style counsellor and representative of the Guild. Mr. Bonner has long-established contacts with French weavers, designers and dressmakers, and he will cooperate with the Guild in the newer developments of silk usage abroad, it was announced.

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Silk Call Light, Prices Fall 10-12½c

Movement of raw silk in New York was light and sluggish throughout February, interest among consuming branches being so indifferent that prices receded 10 to 12½c during the month. The price of Crack Double Extra 13/15 white fell from $1.65 on Feb. 1 to $1.52½ on March 1, and importers were not hopeful of any early pick-up. They pointed out that it is still too soon to look for any tangible results from the silk promotional campaign, but the belief was general that this drive would materially help raw silk movement later in the season.

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Silk Mill News

Corn Spinning Co. and **Willimantic Silk, Inc.,** both of Willimantic, Conn., acting jointly with **Domestic Silks, Inc.,** New York, have purchased the **Jersey Silk Mills,** Plainfield, N. J., operations are being continued at that plant.

General Textile Mills, Inc., has started up the Klots throwing plant at Cumberland, Md., under management of R. F. Van Horn, superintendent.

Albert Godde, Bedin, Inc., Andover, N. Y., idle for more than two years, is resuming production. The plant is being rehabilitated and new machinery and equipment installed.

Olympic Silk Mill, Fulton, N. Y., has purchased 100 new silk looms for installation in its local plant, according to announcement by Jacob Markowitz, general manager.

Cedar Cliff Silk Co., Massena, N. Y., has expansion plans under consideration involving installation of 50 looms.

Lexington Throwing Co., Burlington, N. C., was recently organized with capital of $100,000. W. S. Coulter and L. C. Allen, Burlington, head of the company.

Susquehanna Silk Mills, Inc., Jersey Shore, Pa., plans to install 90 new looms at its plant in that city. The mill resumed early in January after having been closed for nearly a year.

Lansford (Pa.) **Silk Mill,** idle for 11 months, resumed operations on Feb. 8. James Bulmer, superintendent, stated that the full force of 130 employees will be at work within a short time.

Emerald Silk Mill, Slatington, Pa., owned by A. F. Bittner Co., suffered loss of an auxiliary plant located in a leased building which was destroyed by fire Feb. 15.

Quinfort Silk Mills, Inc., Pawtucket, R. I., have been organized to operate a local mill. New company is headed by Walter Adler and Edgar L. Quintin, and Adrien F. Fortin, 958 Narrangansett Boulevard, Providence, R. I.

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Silk Financial Notes

Onondaga Silk Co. reports a profit of $4,046 for the year 1933 compared with one of $50,114 for 1932.

Belding-Corticelli, Ltd., Montreal, Que., had net earnings of $276,335 for the year ended Nov. 30, 1933. This compared with $305,363 for the previous year.

Riverside Silk Mills, Ltd., Toronto, for 1933, had net earnings of $53,637, against $33,834 in 1932. Surplus was slightly higher.

TEXTILE WORLD'S

Knit Goods Digest

THE plan developed for cooperation between the National Association of Hosiery Manufacturers and the Underwear Institute in the conduct of this year's Knitting Arts Exhibition marks a real step forward. Over a long period of years, the former association has developed this exposition into a most successful annual event.

With the lines of coverage of the two organizations now clearly defined, the participation of the underwear group is not only logical but will contribute to the further development of the Philadelphia show.

It is stated that, if this year's cooperative experiment is successful, it will lead to the formation of a joint corporation for the management of future exhibitions. This is another demonstration of the desire of the knitting industry to eliminate associational friction and to plan wisely for the development of each of its branches.—*Editor.*

Plan Hosiery Output Control

Plans for the formation of a new committee to consider hosiery output control in the light of developments at the National Code Congress, Washington, March 5, took precedance in Hosiery Code activity during recent weeks. The chief point is the opposition of the industry to any proposed reduction of working-hours; it is stressed that the hosiery manufacturers were among the first to exercise curtailment of output, and that any further reduction would work hardships on manufacturers, workers and consumers alike, as stocks are now close to normal.

John Wyckoff Mettler, chairman of the Hosiery Code Authority advised the industry Feb. 12 that the assessment of hosiery manufacturers to cover code administration costs will be on the basis of one-tenth of 1% of dollar value of sales. Other developments of the month were: The modification of the code providing for two 40-hour shifts in production departments five days weekly, except where State laws prohibit such operation, in which cases one Saturday shift is permitted; and a formal request to the NRA from the Reading, Pa., branch of the American Federation of Full-Fashioned Hosiery Workers for a definition of workers' rights regarding company unions.

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Knitting Arts Show Space Sells Fast

Plans for the 30th annual Knitting Arts Exhibition to be held April 23 to 27, in the Commercial Museum, Philadelphia, crystallized rapidly during the month. Officers of the National Association of Hosiery Manufacturers, which sponsors the event, stated that at the end of February, reservations for exhibition space were well ahead of last year.

Roy A. Cheney, secretary of the Underwear Institute and T. H. Mueller of R. K. Laros Silk Co., a leader in the Institute's work, have been named a committee to cooperate with the hosiery association on behalf of the underwear industry in arranging the event. The show will be held in a new setting, comprising a central court from which will radiate wide avenues of approach. The hosiery association's exhibition committee, announced Feb. 21, comprises: I. C. Eberly, Oakbrook Hosiery Mills, Reading, Pa.; Joseph P Holt, Aberfoyle Mfg. Co., Chester Pa.; Harry S. Horrocks, H. Brinton Co.; Philadelphia; Kenneth Howie, Wildman Mfg. Co., Norristown, Pa. and Walter L. Toy, Scott & Williams, Inc., New York.

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Underwear Developments

Chief underwear industry developments of the month were: Proposed code amendment restricting machinery installation denied by NRA; Rayon Circular Knit Fabric Institute is organized, with Dudley Mallory, of Industrial Rayon Corp. as president; and the Underwear Institute submitted further code amendments on which a hearing will be held at Washington, March 22.

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Form Outerwear League

Manufacturers of women's knitted outerwear and fabrics of the Atlantic district have organized the Knit Craftsman's League, with headquarters in New York, for the purpose of representing this branch of the outerwear industry in labor disputes. The body will cooperate with the National Knitted Outerwear Association. Officers are: President, Jack Markowitz; vice-president, John P. O'Brien; financial secretary, Edward Cohen; treasurer, Morris Lerner; and recording secretary, Herman Dorfman.

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Hosiery Standards Work Progresses

Substantial progress toward developing standards of construction for women's full-fashioned hosiery were made during February when the standards committee of the National Association of Hosiery Manufacturers held a series of meetings in New York.

The committee, of which William H. Gosch, vice-president, Nolde & Horst Co., is chairman, reached a working agreement on which constructions can be practicably standardized. The problem as a whole has two aspects: First, standard constructions on staple numbers and second standards for inspection and grading of hosiery.

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Cooperation Aim of Southern Hosiery Ass'n.

Work "with and through the National Association of Hosiery Manufacturers" will be one guiding principle of the newly formed Southern Hosiery Manufacturers Association, it was stated Feb. 16 by T. R. Durham, executive secretary of the new organization, at Charlotte, N. C. Mr. Durham added that sectionalism has no place in the association's policy, but that on the contrary every effort will be toward cooperative solution of the hosiery industry's problems. He pointed out that certain issues such as wage differentials and shipment questions, are particularly important to the Southern hosiery manufacturer.

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May Contest Patenting of "Ringless Hosiery"

Possibility of a legal battle to determine the patentability of "ringless hosiery" rights, loomed this month, being crystallized by plans on the part of the Textile Patent Corp., and interested hosiery manufacturing companies, to secure a United States patent on the method. There are prospects that Julius Kayser & Co., may be a key mover in the steps to obtain patent rights.

At present, the "ringless hosiery" situation is extremely complicated. Numerous mills, outside of the above group, are making this type of stocking, it is reported. The issue also has gone before Dr. George W. Taylor, hosiery dispute arbitrator, through application of hosiery knitters that higher wages be paid to those working on ringless hosiery. It is contended that this work requires more skill and therefore output per unit of time is smaller.

Attorneys for patent applicants were unofficially informed by U. S. Patent Office March 2 that the "ringless" patents which trade leaders have estimated would bring $500,000 royalties, would probably be granted. Another hosiery patent litigation development was reversal by the Board of Appeals of the Patent Office's decision giving Schwartz non-run patent to the Textile Patents Corp.; this decision awards the rights to Alfred Graenz.

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Hosiery Agreement Wins Strong Favor

Now that they have had the necessary time to study it in perspective hosiery manufacturers lean strongly to the belief that the agreement signed in Washington between the Full-Fashioned Hosiery Manufacturers of America and the American Federation of Full-Fashioned Hosiery Workers, is a step forward in social legislation. This contract, which is retroactive to Nov. 15, 1933, and runs until Aug. 31, 1934, affects 50 mills and about 30,000 workers.

It represents concessions by both sides. The union is given a wage raise of 5% against a demand for 20%; however, the union also is permitted to enter into agreement with any outside union "which it finds necessary" provided the employer association is given a copy of the agreement. Especial significance attaches to the strike clause, which stipulates in effect that any fundamental change in production costs or living costs would justify a demand for a wage revision by either party. Manufacturers regard this as a strong move toward elimination of strikes.

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Hosiery Figures

The Bureau of the Census, Department of Commerce, announces the following key figures by dozens on hosiery production and shipments for December, 1933, compared with preceding month:

	Production	Net Shipments
November	4,380,159	4,268,006
December	3,495,511	3,608,958

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C.C.C. Underwear

Underwear awards for the Civilian Conservation Corps have been announced by the War Department as follows: Oneita Knitting Mills, Utica, 48,000 wool drawers at 93c. less 2% 10 days; Elliott Mfg. Co., Manchester, N. H., 60,000 wool drawers at 96c. and 36,000 wool shirts at 90c. net; Campe Corp., New York, 468,528 summer shirts at 17.3c. net; Fuld & Hatch, Cohoes, N. Y., 77,400 wool drawers at 91c., and 81,509 wool shirts at 93c. net; Faith Mills, Averill Park, 30,000 wool drawers at 97.5c., and 45,000 wool shirts at 91.5c. less 1% 10 days; Utica Knitting Co., Utica, 50,342 wool drawers at 99c. net.

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Knitting Mill News

Alabama Hosiery Mills, Decatur, Ala., has let contract to the Parks-Cramer Engineering Co., Charlotte, N. C., for installation of new air-conditioning system in portion of mill, estimated to cost about $14,000.

Essex Knitting Mills, Inc., Newark, N. J., has leased space in mill building at 29-39 Division St., totaling about 10,000 sq.ft. Present plant will be removed to new location.

Service Hosiery Mills, Inc., Paterson, N. J., recently organized under direction of Mendelsohn & Mendelsohn, 136 Washington St., Paterson, plan operation of local mill.

Brookside Mfg. Co., Chatham, N. Y. has nearly completed construction of its new plant which will provide 10,000 square feet for knitting sportswear.

Knitwear Mfg. Co., Inc., New York, N. Y., has been organized to establish and operate a local plant.

Wiscassett Mills Co., Albemarle, N. C., is erecting addition to plant No. 1, 30x300 feet, in which will be installed machinery for yarn manufacture.

McLaurin Hosiery Mill, Inc., Asheboro, N. C., is a new mill recently put into operation with 200 model K machines on women's seamless goods and 40 Banner machines on men's wrap stripe 240-needle hose. Capital is $100,000. T. B. Upchurch is president, D. B. McCrary and J. C. Bossong, vice-presidents, N. M. Cranford, secretary and treasurer. Goods are sold through J. C. Bossong & Co., New York.

J. C. Rahn, Manchester, N. H., has set up a plant on bathing suits and sweater coats, leasing the necessary equipment. He was formerly mill manager for New Hampshire Mills, Inc.

Black Mountain (N. C.) **Hosiery Mills** reported at annual meeting Feb. 28, recent increase of production by 60% through installation of new machinery.

Hatch Full-Fashioned Hosiery Co., Belmont, N. C., has work under way on installation of new knitting machines and auxiliary equipment. Mill capacity will be increased. Program will represent investment of about $55,000.

Granite Falls (N. C.) **Hosiery Mill,** recently destroyed by fire, is being rebuilt. W. E. Povey is president.

Mock-Judson-Voehringer, Greensboro, N. C., is erecting a small addition as part of an air-purifying system being installed by the company.

G. & H. Hosiery Mill, Hickory, N. C., is erecting a new mill building at Eighth Ave. and Twenty-third St.

Whisnant Hosiery Mill, Hickory, N. C., will erect an addition to its plant and install 50 new H-H automatic knitting machines.

Classon Knitting Mills, Allentown, Pa., has leased the four-story building formerly occupied by Bayuk Cigar Co.

Ellis Silk Hosiery Co., Emerald and Westmoreland Sts., Philadelphia, Pa., has leased 9,000 sq.ft. additional floor space at same location and will use at once for expansion. A considerable part of branch mill at Charlotte, N. C., has been dismantled and machinery is being transferred to Philadelphia plant.

Fairform Full-Fashioned Hosiery Mills, Philadelphia, Pa., recently organized, have leased a floor in building at Westmoreland and Collins Sts.

Rasco Knitting Mills, Philadelphia, Pa., recently organized, have leased space at 63 North Third St.

Busy Bee Hosiery Co. has leased the Penn Maid Hosiery Mill, Reading, Pa., and is now operating it.

Pannill Knitting Co., Martinsville, Va., has work under way on three-story addition, totaling 18,000 sq.ft. floor space, for which general contract was let to Fenley & McCay, Martinsville. New unit will be used primarily for storage.

Cooper, Wells & Co. have taken over the old **Becker Ingrain Hosiery Mills,** Fort Atkinson, Wis., and renamed them the **Admiration Hosiery Mills.** Product is 54-gage hosiery.

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Knitting Financial Notes

Holeproof Hosiery Co. shows net earnings for 1933 of $38,985 compared with net loss for 1932 of $626,212. Dollar sales for the two years were about equal.

Real Silk Hosiery Mills, Inc., report for 1933 a net profit of $174,947 compared with a net profit of $96,794 for the year before.

Van Raalte Co. reports net profit of $143,881 for 1933, compared with net loss of $1,115,639 in 1932.

Federal Knitting Mills Co. reports profit of $217,458 for 1933 against $209,189 for 1932.

Phoenix Hosiery Co. reports net profit of $286 for 1933 compared with net loss of $549,000 in 1932.

Davenport Hosiery Mills reports profit of $179,833 for 1933 against profit of $134,279 for 1932.

Munsingwear, Inc., reports net profit of $287,269 for 1933 against a net loss of $1,102,451 for 1932. Sales gained 6½% over 1932.

Adams-Millis Corp. reports net profit of $527,447 for 1933 compared with profit of $282,827 in 1932.

American Textiles, Inc., Bay City, Mich., has been discharged from bankruptcy, all claims paid in full, and is now doing business under its original set-up.

Penman's, Ltd., Toronto, Ont., reported net earnings of $277,511 in 1933, compared with $187,493 in 1932. Sales for the year totalled $5,005,103, an increase of 5%.

TEXTILE WORLD'S

Processing Digest

ONE of the most surprising code provisions we have encountered is that contained in Section 18 of the proposed code of trade practices for the rayon and silk dyeing and printing industry. It reads: "No concern shall, directly or indirectly, induce, entice, or persuade the employee of another concern to leave his employment and/or to enter the employ of another, with or without the promise of more advantageous terms of employment or at a greater rate of pay."

We believe that such a provision has no place in any code. With due recognition of the evils which have developed at times in connection with "sniping" at employees of competing concerns, we do not believe that, in order to avert these evils, a wall should be built about the personnel of each company. It would be grossly unfair to the individual, and would seriously retard the progress of the industry itself. No one with an iota of ambition would seek employment in mills so "safeguarded." Technically trained men and others now employed in the silk and rayon finishing industry would leave it at the first opportunity.

This attempt to "freeze" the personnel of an industry is another manifestation of the hysteria which has entered into certain phases of code-making. It should be abandoned.—*Editor.*

Continue Curtailment in Printing Industry

The immediate outlook for the cotton printing industry is regarded as considerably improved, thanks to the extension of the curtailment program on printing machines for an additional four weeks. The curtailment was due to conclude at the end of February, but the effect on accumulations was not as pronounced as had been expected, and a month's prolongation of the order was decided upon, with the exception that three machines in each plant are exempt. Printers regarded the extension as a constructive move which should serve both to reduce the stocks on hand and to bring a firming of prices. One interesting factor is that the curtailment has created a much healthier psychology in the printing industry and there is less pressure toward taking unprofitable business.

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Institute of Dyers & Printers Elects Officers

The election of G. H. Conze of the Sunbury Converting Works, as president of the board of trustees featured the meeting of the Institute of Dyers & Printers held Feb. 10 at the Alexander Hamilton Hotel, Paterson, N. J. Mr. Conze succeeds Charles L. Auger, Sr., in that office. Judge John F. Evans was reelected executive vice-president, and James E. Simpson, of the Vogue Dyeing & Finishing Co. also was made a vice-president. Trustees elected included:

Michael Clemens, of Caledonia Print Works; Bernard R. Armour, president, Associated Dyeing & Printing Co.; Theodore Boettger, president, United Piece Dye Works; Herman H. Geller, of International Dye & Print Works, former vice-president; Charles Horne, Empire Piece Dyeing & Finishing Co.; Arthur Nazzaro, Radiance Piece Dye Works; Walter Neale, Apex-Oriental Corp.; Robert Wyder, Textile Dyeing & Printing Co. of America.

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A.A.T.C.C. Notes

At the winter meeting of the Southeastern Section of the American Association of Textile Chemists & Colorists, held Feb. 10, in Atlanta, Ga., T. N. Forbes, secretary, Cotton Manufacturers Association of Georgia, spoke on "The Operation of the Textile Industry Under the NRA." Technical papers were presented by W. B. Sellars, of Tubize-Chatillon Corp., on "The Testing of Rayon"; and by Paul Seydel, of Seydel Woolley Co., on "The Chemical Composition of Raw Cotton."

The February meeting of the New York Section was held on Feb. 23. Harold A. Sweet, of General Dyestuff Corp., delivered a technical paper on "Detergents—Old and New."

Dr. Robert S. Williams, of Massachusetts Institute of Technology, spoke on "Diseases of Steels and Other Metals, and Their Prevention" at a meeting of the Rhode Island Section, held in Providence, on Feb. 7.

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Alleged Violation of Silk Dyeing Code

The first formal instance of alleged violation of the silk and rayon dyeing and printing code came before the National Compliance Board in February, when the Allied Print & Dye Works, of Clifton, N. J., was accused of disobeying the code on two counts. The board withdrew the Blue Eagle from this firm and referred the case to the Department of Justice. The charges are that the company worked employes 15 hours daily in violation of the code clause limiting work-time to 10 hours, and had also operated on Saturday in violation of another clause in the code.

It is asserted that the dry box department at this plant was operated from 12:45 a.m. to 3 p.m. on Saturday, Jan. 27. Gen. W. N. Haskell, executive director of the code authority for the industry, in commenting on the case said that he hopes this action against "a willful violator of NRA regulations" will show a "clear definition of our intentions to enforce every provision of the code to the very last ditch." A representative of the company stated in defense that the firm had to choose between the violation or the loss of several thousand dollars in spoiled merchandise. The spokesman explained that the dry box machinery broke down when several hundred pieces of wet goods needed drying and that unless these were dried at once they would have been ruined.

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Textile Technologists Elect Officers

J. J. Reutlinger, president of Hatch & Reutlinger, has been elected first president of the recently organized Association of Textile Laboratories and Technologists. Other officers elected were: secretary, Lillian Edgerton, president of Edgerton Laboratories; and treasurer, Harry Levin, president of the Silk Grading and Testing Laboratories. A planning committee has been elected, comprising Dr. J. F. X. Harold and Ernest Barber. The aims of the organization are to discuss testing methods, promote interest in testing among clients, and cooperate with other divisions under the code for commercial testing laboratories.

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Textile Designers Meet

A plan to compel observance of craft ethics throughout the textile designing field through a formal pledge supported by a bond for each member of the craft, was outlined at a meeting of the National Society of Textile Designers, held last month in New York. The bond plan won strong approval among

those at the meeting, although there were various views expressed regarding the way in which the plan should be put into effect. It was stated that the premiums on the bonds proposed would be about $10 per $1,000. An infraction of the bond agreement would mean surrender of the bonded amount to the National Society or the Textile Designers Guild, and it was felt that this severity would tend to banish objectionable practices from the craft.

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Standard Claim Form Adopted for Silk Dyeing Industry

Details of all claims adjusted by dyers and printers must be submitted to the Code Authority of the dyeing and printing industry, under a ruling issued Feb. 20 by Gen. Wm. N. Haskell, executive director of the code authority. Gen. Haskell has distributed among the dyers and printers a standard claim form to be used by converters in filing their claims against dyers. The Code Authority now has many claims in its hand for settlement and quick disposal of these is expected.

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Emulsifying Agent

Emulphor A Oil-Soluble, a new cold-emulsifier for producing emulsions free from soap, has been announced recently by General Dyestuff Corp., New York. Emulphor A is an oily liquid which can be thoroughly mixed with most technical oils. The manufacturer states that it acts itself as a fat, thereby making possible the complete utilization of oils which cannot be saponified. It is stated further that no special precautions are necessary in the production of emulsions, as these are formed without difficulty even in hard water, and without any special equipment and at ordinary temperatures. The new product is recommended for emulsifying liquid fatty oils, such as olive oil, peanut oil, rape seed oil, neats-foot oil, castor oil, and mineral oil; it is not suited, however, for fatty acids, mixtures of neutral oils and fatty acids, solid fats, paraffin wax, or other waxes.

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New Dyestuffs

General Dyestuff Corp. announces the following new products:

Fast Orange Salt LG, a new fast color salt of interest in textile printing; compared with Fast Orange Salt RD, it yields, in combination with a number of the Naphtol AS brands, shades of a much yellower cast. Combinations of Fast Orange Salt LG with Naphtol AS-OL and AS-LT possess very good fastness to light and boiling, and excellent fastness to washing and chlorine.

Plurafil Pure Green GA and Plurafil Pure Blue BA, two supplements to the range of Plurafil dyestuffs recommended for dyeing mixed fabrics containing cellulose acetate. Plurafil Pure Green GA gives clear, yellowish greens, fairly solid shades being obtained on cotton, rayon, wool, silk, and acetate. Plurafil Pure Blue BA yields clear blue shades somewhat on the greenish side.

Palatine Fast Red GRE, an addition to the red brands of the Palatine Fast dyestuff range. Dyeings are of good fastness to light, water, rubbing, hot pressing, perspiration, carbonizing, and decatizing; and of adequate fastness to washing; fastness to fulling is sufficient for a moderate flannel. This product is suitable for dyeing of wool and pure silk and for the direct printing of wool and silk. It is readily dischargeable.

Anthralan Violet 4BF, a homogeneous acid-leveling dyestuff giving violet shades of a bluish cast. It possesses very good solubility and levels well. Its fastness to light, rubbing, and alkali is very good; fastness to decatizing very good to excellent; and fastness to carbonizing good to very good.

Acid Alizarine Red 3BG, a chrome dyestuff giving shades of very good fastness to light, perspiration, hot pressing, carbonizing and rubbing; excellent fastness to washing, fulling, salt water and carbonizing.

Benzo Viscose Blue RL, a fast-to-light direct dyestuff particularly suitable for dyeing rayon of varying affinity; it is much superior to Benzo Viscose Blue R as regards fastness to light and fastness to acid; other fastness properties are up to the normal requirements which direct dyestuffs are expected to satisfy; dischargeability is good.

E. I. du Pont de Nemours & Co., Inc., announces the following new product:

Pontacyl Violet 12B, an acid dyestuff which produces very bright bluish shades of violet. It is bluer and brighter than Pontacyl Fast Violet 10B and is as level dyeing as the Du Pont Anthraquinone Blues, but possesses the advantage of turning less red under artificial light than the majority of acid violets. Dyeings are very fast to ammonia, ironing, rubbing, stoving, and water spotting; and show good resistance to perspiration, steaming, and cold water.

PROCESSING IN THIS ISSUE

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Discuss Corrosion Tests At A.C.S. Meeting

Corrosion testing procedure was the subject of an illustrated address made by H. E. Searle, of the development and research department, The International Nickel Co., March 12, at the meeting of the North Jersey Section of the American Chemical Society. Mr. Searle supplemented his talk with a motion picture outlining testing methods.

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Issues Wool Color Card

Faded and overcast shades are highlighted in the 1934 summer woolen card just made public by the Textile Color Card Association. The card is supplementary and comprises ten new shades, among which the most interesting are: Dustblu, a medium tone of gray influence; Aztec Rust, an Indian pottery shade with a touch of rose; and Mexigold, a deep old gold.

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Processing Plant News

Armco Finishing Co., Burlington, N. C., is expected to have building renovated and machinery installed and ready to begin operations there very soon. Silks and rayons will be finished. Henry Dieckman, formerly of Paterson, N. J., will be in charge of operations as superintendent. W. M. Transou, Jr., of Greensboro, N. C., will be in charge of the office.

Armingo Dyeing & Finishing Co., Duncan and Sepviva Sts., Philadelphia, Pa., has purchased one-story mill building at Belgrade, Miller and Ontario Sts., and will improve for new plant. Plant will be removed to new location and capacity increased.

United Piece Dye Works reports a net loss of $2,324,125 for the year 1933, compared with a loss of $2,172,755 in the preceding year. The major factor contributing to this showing was the two-months' strike last fall.

National Silk Dyeing Co., Paterson, N. J., has changed its name to **National Dyeing and Printing Co.** Charles L. Auger, president, states that the financial, directing and executive structure and all other conditions of the company remain unchanged.

QUOTATIONS

At close of business, Mar. 1, 1934

Prices cover average qualities unless otherwise stated.

Cotton Goods

	*Mar. 1	Feb. 1	1933 Mar. 1
PRINT CLOTHS			
27 -in., 64x60, 7.60	5	4½	2
38½-in., 64x60, 5.35	7½	7	3
39 -in., 68x72, 4.75	8	7½	3½
39 -in., 72x76, 4.25	9¼	9	3½
39 -in., 80x80, 4.00	10	9½	3½
BROWN SHEETINGS			
36-in., 56x60, 4.00	8½	7½	3½
36-in., 48x48, 5.00	6½	6½	2½
37-in., 48x48, 4.00	7½	7½	2½
MISCELLANEOUS			
Drills, 37-in., 3 yd.	10	9½	4½
Denims, 2.20	16	15½	8½
Tickings, 8 oz.	18½	18½	11
Standard Prints	7½	7	6

*Tax included.

Cotton Waste

Peeler comber	12.00c
Peeler strip	11.25c
White spooler (single)	5.75c

Cotton Prices

Spot Cotton at:	Mar. 1	Feb. 1	For Month High	For Month Low	1933 Mar. 1
New York	12.20	11.75	12.65	11.75	6.15
New Orleans	11.97	11.42	12.42	11.42	6.05
Liverpool	6.52	6.23	.....	.....	.....

FLUCTUATIONS OF FUTURES

	Closed Mar. 1	For Month High	For Month Low	Closed Feb. 1	Net Change
Mar.	11.88	12.32	11.39	11.39	+0.49
April	11.93	12.38	11.47	11.47	+0.46
May	11.99	12.45	11.55	11.55	+0.44
June	12.06	12.54	11.63	11.63	+0.43
July	12.14	12.63	11.72	11.72	+0.42
Oct.	12.29	12.83	11.92	11.92	+0.37
Dec.	12.41	12.99	12.01	12.01	+0.40
Jan.	12.47	13.03	12.09	12.09	+0.39

AVERAGE PRICE JUNE-JULY SHIPMENT HARD WESTERN COTTON

	F.o.b. New England Middling	St. Middling
1⅛-in.	14.74	16.24
1 3/16-in.	16.24	17.99
1¼-in.	19.99	21.99

Based on May 11.99

FOREIGN COTTONS

Alexandria Exchange, Mar. 1

May, Sak	16.03
April Uppers	12.33
Shipment c.i.f. Boston (Tariff not included)	
Medium Sak	27.25
Medium Uppers	23.05
(By Anderson, Clayton & Co.)	
India Rough, Calcutta Camilla	10.50
China Tientsin No. 1	13.75

Quotations on cotton cloth and cotton yarn as given on this page include the cotton processing tax. Where figures for dates earlier than Aug. 1, 1933, are given for comparison, such figures of course do not include this tax.

Cotton Yarn (Nominal)

(Tax Added)

CARDED (Average Quality)

Double Carded 2c—4c., higher according to quality.

SINGLE SKEINS OF TUBES (Warp Twist)

4s to 8s	$0.29	20s	$0.32½
10s	– .29½	24s	– .34½
12s	– .30	26s	– .35½
16s	– .31	30s	– .37½

TWO-PLY SKEINS AND TUBES

8s-2	$0.29½	20s-2	$0.33
10s-2	– .30	24s-2	– .35
14s-2	– .31	30s-2	– .38
16s-2	– .31¼	40s-2	– .44

SINGLE WARPS

10s	$0.29½	20s	$0.33
14s	– .30½	24s	– .35
16s	– .31½	30s	– .38

TWO-PLY WARPS

8s-2	$0.30	20s-2	$0.33½
10s-2	– .30½	24s-2	– .35½
14s-2	– .31½	30s-2	– .38½
16s-2	– .32	40s-2 ordin.	– .44½

HOSIERY CONES (Frame Spun)

8s	$0.29½	18s	$0.32
10s	– .30	20s	– .33
12s	– .30½	22s	– .34
14s	– .31	24s	– .35
16s	– .31½	26s	– .36

COMBED PEELER (Average Quality)
TWO-PLY—(Knitting Twist) Cones

20s-2	$0.43	50s-2	$0.57
30s-2	– .47½	60s-2	– .62
40s-2	– .51½	80s-2	– .81

WARPS, SKEINS AND CONES
TWO-PLY—(Warp Twist)

20s-2	$0.43½	50s-2	$0.58½
30s-2	– .46½	60s-2	– .63½
36s-2	– .50½	70s-2	– .73½
40s-2	– .52½	80s-2	– .83½

SINGLES

14s	$0.38	38s	$0.49½
20s	– .40½	40s	– .50½
28s	– .44½	50s	– .55½
30s	– .45½	60s	– .62½

MERCERIZED CONES—(Combed, Ungassed)

20s-2	$0.54	60s-2	$0.74
40s-2	– .59	80s-2	– .95

Raw Silk

Prices Nominal

	13/15 White	20/22 White	20/22 Yellow
Special Grand, 85%	$1.70	$1.50	$1.46
Grand XX, 83%	1.60	1.46	1.43
Special Crack, 81%	1.55	1.43	1.40
Crack XX, 78%	1.52	1.42	1.39
Extra, Extra, 73%	1.50	1.40	1.37
Best Extra, 68%	1.46	.....	.....

RAW SILK EXCHANGE

	Mar. 1	Feb. 1	For Month High	For Month Low	Net Change
March	1.39	1.49	1.52	1.39	—0.10
April	1.41	1.49	1.53	1.41½	—0.08
May	1.41	1.49	1.53½	1.43	—0.08
June	1.41	1.49	1.53½	1.43	—0.08
July	1.41¼	1.49½	1.54	1.43	—0.08
August	1.42	1.50	1.54½	1.43	—0.08
October	1.42	1.50	1.54½	1.44	—0.08

Silk Yarns

Hosiery tram 5thd. Japan, 85%	$2.37½
Hosiery tram, 5thd. crack XX, 78%	2.17½
60/2 spun silk	2.95

RAYON WASTE

Thread (for garnetting)	$0.15 –$0.18

Wool

OHIO, PENNSYLVANIA, ETC., (GREASE)

Fine delne	$0.35–$0.37	⅜ blood	$0.42–$0.43
Fine clthg	.29– .30	½ blood	.41– .42
¼ blood	.36– .38		

TEXAS AND CALIFORNIA (CLEAN)

Texas, 12 months	$0.83 –$0.85
California, Northern	.74 – .77

MONTANA, IDAHO, WYOMING (CLEAN)

Staple fine	$0.86 –$0.88
Staple ½ bld	.83 – .85
Fine and fine-medium (original bag)	.81 – .83
⅜ blood	.81 – .83
¼ blood	.73 – .75

EASTERN SCOURED PULLINGS

A.A	$0.95 –$0.97	B-Super	$0.73 –$0.80
A-Super	.85 – .88	C-Super	.68 – .72

CARPET WOOL (Nominal)

Aleppo (clean)	$0.20 –$0.22
Sining	.13 – .17
China filling (clean)	.12 – .16

Tops and Noils

TOPS—BOSTON

Fine (64-66s)	$1.18 –$1.20
Half-blood (60-52s)	1.14 – 1.15
Aver. ⅜ blood (56s)	1.07 – 1.08
¼ blood (50s)	.96 – .98

NEW YORK TOP FUTURES

	Closed Mar. 1	For Month High	For Month Low	Closed Feb. 1
March	106.20	108.00	106.00	$106.90
April	106.70	108.30	106.20	107.10
June	107.80	109.20	107.20	107.60
Sept	108.80	110.40	108.70	109.80
Dec.	110.10	111.30	109.80	110.00

TOPS—BRADFORD ENG (Mar. 1)

Fine (64s)	38d	⅜ bld. (56s)	27½d
½ bld. (60s)	37½d	¼ bld. (50s)	20¼d

NOILS—BOSTON

Fine	$0.58 –$0.60	⅜ bld.	$0.52 –$0.53
Half bld.	.54 – .56	¼ bld.	.49 – .51

Worsted Yarns

ENGLISH SYSTEM WEAVING

2-20s 44s	$1.25 –$1.30	2-36s 58s	$1.55 –$1.60
2-30s 46c	1.35 – 1.40	2-40s 60s	1.65 – 1.70
2-30s mixes	1.75 – 1.85	2-50s 64s	1.80 – 1.85

ENGLISH SYSTEM KNITTING

2-20s 44s	$1.20 –$1.25	2-20s 60s	$1.45 –$1.50
2-20s-50s	1.25 – 1.30	2-20s 64s	1.50 – 1.55

FRENCH SYSTEM

1-26s 64s	$1.50 –$1.55	2-40s 64s	
1-30s 64s		Zephyrs	$1.75 –$1.77½
warp	1.55 – 1.60	2-50s 66s	1.90 – 1.95

Domestic Rayon (Skeins)

VISCOSE PROCESS

Denier	Filament	Price	Denier	Filament	Price
50	14	$1.25	150	24–40	$0.65
75	30	1.00	150	60	.70
100	40	.85	300	44	.55
125	36	.72			

NITRO-CELLULOSE PROCESS

Denier	First Qual.	Denier	First Qual.
75	$1.05 –$1.10	150	$0.70
100	.90 – .95	175	.70

ACETATE PROCESS

Denier	Price	Denier	Price
45	$1.30	100	$0.95
60	1.20	120	0 80
75	1.10	150	0.78

CUPRAMMONIUM PROCESS (TWISTED)

Denier	Filament	Price	Denier	Filament	Price
30	24	$1.60	100	75	$1.00
75	60	1.20	150	112	.90